SPECIAL PROVISIONS & SUPPLEMENTAL SPECIFICATIONS

CSI-Inch/Pound

Project No:	SP-9999(749)	
Name:	Bridge Preservation; SR-26 and SR-79 in Ogden	
	Bridge Preservation #'s C-801 C-802-C-904 C-905	
County:	WEBER	
Bid Opening:	April 19, 2005	

Date



2005 - U.S. Standard Units (Inch-Pound Units) January 1, 2005

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SP-9999(749)

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			Method)

State Projects With 8 $\frac{1}{2}$ x 11 Plan Sheets

I. 2005 Standard Specifications

The State of Utah Standard Specifications for Road and Bridge Construction, U.S. Standard Units (Inch Pound Units), Edition of 2005 applies on this project as a static Specification Book as well as all other applicable specification changes.

Refer to Part XII (Special Provisions and Supplemental Specifications) for other project specific specifications.

II. List of Revised Standard Drawings

None at this time.

III. Materials Minimum Sampling and Testing

Follow the requirements of the Current Materials Minimum Sampling and Testing Manual:

Materials Minimum Sampling and Testing Manual reference can be found from the UDOT Web Site at:

http://www.udot.utah.gov/index.php/m=c/tid=645



NOTICE TO CONTRACTORS

Sealed proposals will be received by the Utah Department of Transportation UDOT/DPS Building (4th Floor), 4501 South 2700 West, Salt Lake City, Utah. 84114-8220, until 2 o'clock p.m. Tuesday, April 19, 2005, and at that time the download process of bids from the USERTrust Vault to UDOT will begin, with the public opening of bids scheduled at 2:30 for Bridge Preservation #'s C-801 C-802-C-904 C-905 of Bridge Preservation; SR-26 and SR-79 in Ogden in WEBER County, the same being identified as State Project No: SP-9999(749).

Federal Regulations:

Wage Rate Non-Applicable.

Project Location: Bridge Preservation; SR-26 and SR-79 in Ogden

The principal items of work are as follows (for all items of work see attachment):

Polymer Overlay, Type 1 Traffic Control Mobilization

The project is to be completed: in 30 Calendar Days.

Other Requirements:

All project bidding information, including Specifications and Plans, can be viewed, downloaded, and printed from UDOT's Project Development Construction Bid Opening Information website, http://www.udot.utah.gov/index.php/m=c/tid=319. To bid on UDOT projects, bidders must use UDOT's Electronic Bid System (EBS). The EBS software and EBS training schedules are also available on this website.

Project information can also be reviewed at the main office in Salt Lake City, its Region offices, and its District offices in Price, Richfield, and Cedar City.

Project Plans cannot be downloaded or printed from the website unless your company is registered with UDOT. Go to UDOT's website to register. Unregistered companies may obtain a **CD**, that contains the Specifications and Plans, from the main office, 4501 South 2700 West, Salt Lake City, (801) 965-4346, for a fee of \$20.00, plus tax and mail charge, if applicable, none of which will be refunded.

Prequalification of bidders is required. Prior to submitting a bid, the bidder must have on file with the Utah Department of Transportation a completed and approved contractor's application for prequalification. Department processing time is 10 working days from receipt of properly executed documentation.

As required, a contractor's license must be obtained from the Utah Department of Commerce.

Each bidder must submit an electronic bid bond from an approved surety company using UDOT's Electronic Bid System (EBS); or in lieu thereof, cash, certified check, or cashier's check for not less than 5% of the total amount of the bid, made payable to the Utah Department of Transportation, showing evidence of good faith and a guarantee that if awarded the contract, the bidder will execute the contract and furnish the contract bonds as required.

The right to reject any or all bids is reserved.

If you need an accommodation under the Americans with Disabilities Act, contact the Construction Division at (801) 965-4346. Please allow three working days.

Additional information may be secured at the office of the Utah Department of Transportation, (801) 965-4346.

Dated this 02nd day of April, 2005.

UTAH DEPARTMENT OF TRANSPORTATION John R. Njord, Director

State Projects With 8 ½ x 11 Plan Sheets

Utah Department of Transportation Bidder's Schedule

Bid Opening Date: 4/19/2005Region: REGION 1Project Number: SP-9999(749)County: WEBER

Project Name: Bridge Preservation; SR-26 and SR-79 in OgdenConcept: Bridge Preservation #'s C-801 C-802-C-904 C-905

Funding: STATE

Bid Items Version#: 1

Item Description Quantity Unit

20 -	20 - STRUCTURES					
1	01285001P	Mobilization	1	lump sum		
2	013150010	Public Information Services	1	lump sum		
3	015540005	Traffic Control	1	lump sum		
4	02763001*	Partial Depth Concrete Repair	10000	pound		
5	02768005*	4 inch Pavement Marking Tape - White	2725	foot		
6	02768015*	4 inch Pavement Marking Tape - Yellow	2112	foot		
7	03371000*	Polymer Overlay, Type 1	99380	square foot		
8	03381001*	Seal Bridge Columns and Bents	1	lump sum		
9	03381002*	Seal Bridge Parapets	4300	foot		
10	03605001*	Approach Slab Jacking	1	lump sum		

Page 1 of 1 3/29/2005 16:30:37

^{*}Note: Item numbers ending with "*" or "P" identify a change to the Standard Specification, Supplemental Specifications or Measurement and payment. Read all related documents carefully.

Measurement and Payment SP-9999(749)

The Department will measure and pay for each bid item as detailed in this section. Payment is contingent upon acceptance by the Department.

Items are listed by Specification and in tables as follows:

Item #	Bid Item Number	Bid Item Name	Unit of Measurement and Payment
Additional information go	es here.		

1	01285001P	Mobilization	Lump sum
	Include railroa	d coordination and flagging costs.	
	Payment	Amount Paid	When Paid
	First	The lesser of 25% of Mobilization or 2.5% of contract	With first estimate
	Second	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 5% of contract
	Third	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 10% of contract
	Fourth	The lesser of 25% of Mobilization or 2.5% of contract	With estimate following completion of 20% of contract
	Final	Amount bid in excess of 10% of contract price.	Project Acceptance-Final
	1		
2	013150010	Public Information Services	Lump Sum
	Payment	Amount Paid	When Paid

2	013150010	Public Information Services	Lump Sum
	Payment	Amount Paid	When Paid
	First	25% of bid item amount	With first estimate
	Second	Remaining portion of bid item paid as a percentage of the contract completed	With each estimate

3	015540005	Traffic Control	Lump Sum
	Payment	Amount Paid	When Paid
	First	25% of the bid item amount	With first estimate
	Second	Remaining portion of bid item paid as a percentage of the contract completed	With each estimate

4	02763001*	Partial Depth Concrete Repair	Pound
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Estimated plan quantities are based on preliminary field review for bidding purposes only. Repair the actual quantities determined by the Engineer. Pothole patching may be reduced, deleted or increased over the bid quantities from the contract. If any of these situations occur, the price of the actual quantity will be paid for at the contract unit price. Department will not allow additional compensation for repairing blow throughs or for removing and repairing failed patches.

5	02768005*	4 inch Pavement Marking Tape – White	Feet		
A.	Do not measure the gap in the broken line.				
B.	Include all costs for the Manufacturer's Service Representative and other technical assistance in the				
	contract unit prid	ne.			

6	02768015*	4 inch Pavement Marking Tape - Yellow	Feet		
A.	Do not measure the gap in the broken line.				
B.	Include all costs for the Manufacturer's Service Representative and other technical assistance in the				
	contract unit pri	contract unit price.			

	7	03371000*	Polymer Overlay, Type 1	Square feet			
Ī	The price will be full compensation for all work including, but not limited to, striping removal, minor pothole						
ı	natchine	natching shot blasting apply polymer overlay and aggregate					

8	03381001*	Seal Bridge Columns and Bents	Lump Sum
Full con	mpensation for cle	aning and applying sealer to entire column and faces and bottom of ben	ts.

9	03381002*	Seal Bridge Parapets	Feet				
Of surfa	Of surface covered. Apply on top and traffic face of parapets						

10	03605001*	Approach Slab Jacking	Lump Sum		
In place. Use high-density polyurethane.					

VII. PDBS Project Summary Report and Detailed Stationing Summaries Report

Summary Report

Project: SP-9999(749)

Version: 1

Bridge Preservation; SR-26 and SR-79 in Ogden

Detail		Alt Group Alt # Description	
20 - STRUCT	URES	0 0	
	Item Number	Description Qty	Unit
	01285001P	Mobilization 1	Lump
	013150010	Public Information Services 1	Lump
	015540005	Traffic Control 1	Lump
	02763001*	Partial Depth Concrete Repair 10,000	lb
	02768005*	4 inch Pavement Marking Tape - White 2,725	ft
	02768015*	4 inch Pavement Marking Tape - Yellow 2,112	ft
	03371000*	Polymer Overlay, Type 1 99,380	sq ft
	03381001*	Seal Bridge Columns and Bents 1	Lump
	03381002*	Seal Bridge Parapets 4,300	ft
	03605001*	Approach Slab Jacking 1	Lump

3/2/2005 Page 1 of 1

Detailed Report

SP-9999(749)

Version: 1

Bridge Preservation; SR-26 and SR-79 in Ogden

20 - STRUCTURES

Alt Group: 0 Alt #: 0

Descriptio	n				Use Qty	Unit
4 inch Pavement Ma	rking Tape -	White			2,725	ft
Station From Offset	To Station	To Offset	Qty	Comment		
			750.0			
			795.0			
			625.0			
			305.0			
			250.0			
			2,725.0			
4 inch Pavement Ma	rking Tape -	Yellow			2,112	ft
Station From Offset	To Station	To Offset	Qty	Comment		
			600.0			
			637.0			
			500.0			
			205.0			
			170.0			
			2,112.0			
Polymer Overlay, Ty _l	pe 1				99,380	sq ft
Station From Offset	To Station	To Offset	Qty	Comment		
			28,100.0			
			29,800.0			
			23,400.0			
			9,140.0			
			8,940.0			
			99,380.0			
Seal Bridge Column	s and Bents				1	Lump
			Otv	Comment	•	Iz
Station From Onset	10 Otalion	10 Onset	Qiy		ft. (Does not inclu	ude parapets)
			0.0		,	1 1 /
	4 inch Pavement Ma Station From Offset Polymer Overlay, Ty Station From Offset Seal Bridge Column	Polymer Overlay, Type 1 Station From Offset To Station	4 inch Pavement Marking Tape - Yellow Station From Offset To Station To Offset Polymer Overlay, Type 1 Station From Offset To Station To Offset Seal Bridge Columns and Bents	750.0 795.0 625.0 305.0 250.0 2,725.0 4 inch Pavement Marking Tape - Yellow Station From Offset To Station To Offset Oty 600.0 637.0 500.0 205.0 170.0 2,112.0 Polymer Overlay, Type 1 Station From Offset To Station To Offset Oty 28,100.0 29,800.0 23,400.0 9,140.0 8,940.0 99,380.0 Seal Bridge Columns and Bents Station From Offset To Station To Offset Oty	750.0 795.0 625.0 305.0 250.0 250.0	750.0 795.0 625.0 305.0 250.0 2,725.0 4 inch Pavement Marking Tape - Yellow Station From Offset To Station To Offset Oty 600.0 637.0 500.0 205.0 170.0 2,112.0 Polymer Overlay, Type 1 Station From Offset To Station To Offset Oty 28,100.0 29,800.0 29,800.0 29,800.0 29,400.0 9,140.0 8,940.0 99,380.0 Seal Bridge Columns and Bents Station From Offset To Station To Offset Oty Comment Approx. 3500 sq. ft. (Does not included Approx. 3500 sq. ft.

Detailed Report

SP-9999(749)

Bridge Preservation; SR-26 and SR-79 in Ogden

Version: 1

On struct. and conc. pavement between 700W. and

20 - STRUCTURES

C-801 WB

Alt Group: 0 Alt #: 0 Use Qty Unit Item Number Description 03381002* **Seal Bridge Parapets** 4,300 ft Line/Sheet From Station From Offset To Station To Offset Qty Comment C-801 EB 1,200.0 C-801 WB 1,300.0 C-802 1,000.0 C-904 450.0 C-905 350.0 4,300.0 03605001* Approach Slab Jacking Lump Line/Sheet From Station From Offset To Station To Offset Qty Comment East end approach slabs - 2 slabs C-801 East end approach slab - 1 slab C-802 Both approach slabs - 2 slabs C-904 C-905 Both approach slabs - 2 slabs 0.0 **Pothole Patching** 03934001* 10,000 lb Line/Sheet From Station From Offset To Station To Offset Qty Comment C-801 EB On struct. and conc. pavement between 700 W. and 6,000.0

4,000.0

10,000.0

300W.

Detailed Report SP-9999(749)

01 -3333(1 -43)

Version: 1

Bridge Preservation; SR-26 and SR-79 in Ogden

20 - STRUCTURES

Alt Group: 0 Alt #: 0

Item Number	Description			Use Qty Unit
02763001*	Partial Depth Concrete R	epair		10,000 lb
Line/Sheet From	m Station From Offset To St	tation To Offset	Qty	Comment
C-801 EB			6,000.0	On struct. and conc. pavement between 700 W. and 30 W.
C-801 WB			4,000.0	On struct. and conc. pavement between 700 W. and 30 W.
			10,000.0	
02768005*	4 inch Pavement Marking	յ Tape - White		2,725 ft
Line/Sheet From	m Station From Offset To St	tation To Offset	Qty	Comment
C-801 EB			750.0	
C-801 WB			795.0	
C-802			625.0	
C-904			305.0	
C-905			250.0	
			2,725.0	
02768015* Line/Sheet From C-801 EB C-801 WB C-802 C-904 C-905	4 inch Pavement Marking m Station From Offset To Si		Qty 600.0 637.0 500.0 205.0 170.0	2,112 ft Comment
03371000*	Polymer Overlay, Type 1			99,380 sq ft
	m Station From Offset To St	tation To Offset	Qty	Comment
C-801 EB			28,100.0	
C-801 WB			29,800.0	
C-802			23,400.0	
C-904			9,140.0	
C-905			8,940.0	
			99,380.0	

Detailed Report SP-9999(749)

Bridge Preservation; SR-26 and SR-79 in Ogden

Version: 1

Bridge Preservation, 3N-20 and 3N-79 in Ogue

C-905

20 - STRUCTURES	Alt Group: () Alt #: 0				
Item Number	Descripti	on			Use Qty Unit	
03381001*	Seal Bridge Columi	ns and Bents			1 Lump	
Line/Sheet From C-801 EB C-801 WB	Station From Offset	To Station	To Offset	Qty	Comment Approx. 3500 sq. ft. (Does not include parapets Approx. 3500 sq. ft. (Does not include parapets	
03381002*	Seal Bridge Parape	ts			4,300 ft	
	Station From Offset	To Station	To Offset	Qty	Comment	
C-801 EB				1,200.0		
C-801 WB				1,300.0		
C-802				1,000.0		
C-904				450.0		
C-905				350.0		
				4,300.0		
03605001*	Approach Slab Jac	king			1 Lump	
Line/Sheet From	Station From Offset	To Station	To Offset	Qty	Comment	
C-801					East end approach slabs - 2 slabs	
C-802					East end approach slab - 1 slab	
C-904					Both approach slabs - 2 slabs	

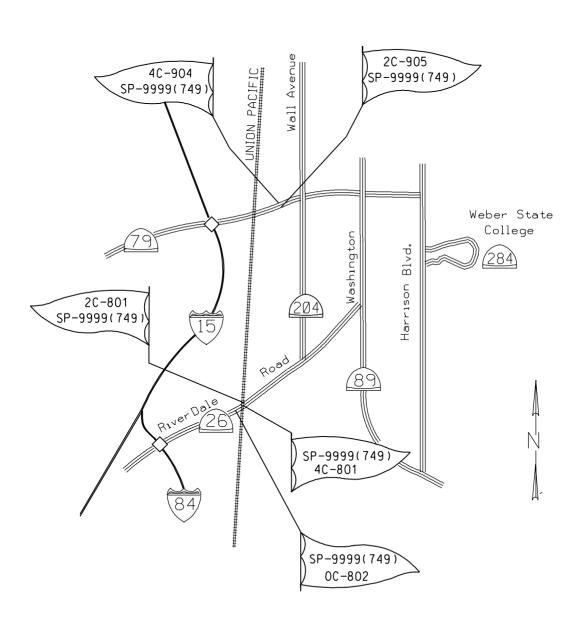
0.0

Both approach slabs - 2 slabs

3/2/2005 # For Information only Page 2 of 2

VIII. LOCATION MAP MAINTENANCE PROJECT SP-9999(749) - WEBER COUNTY

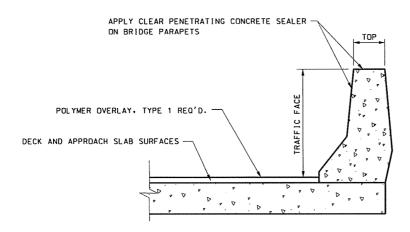
BRIDGE PRESERVATION SR-26 & SR-79 IN OGDEN C-801, C-802, C-904 & C-905



PROJECT No. SP-9999 (749) POLYMER OVERLAY AND CONCRETE SEALER

STRUCTURES

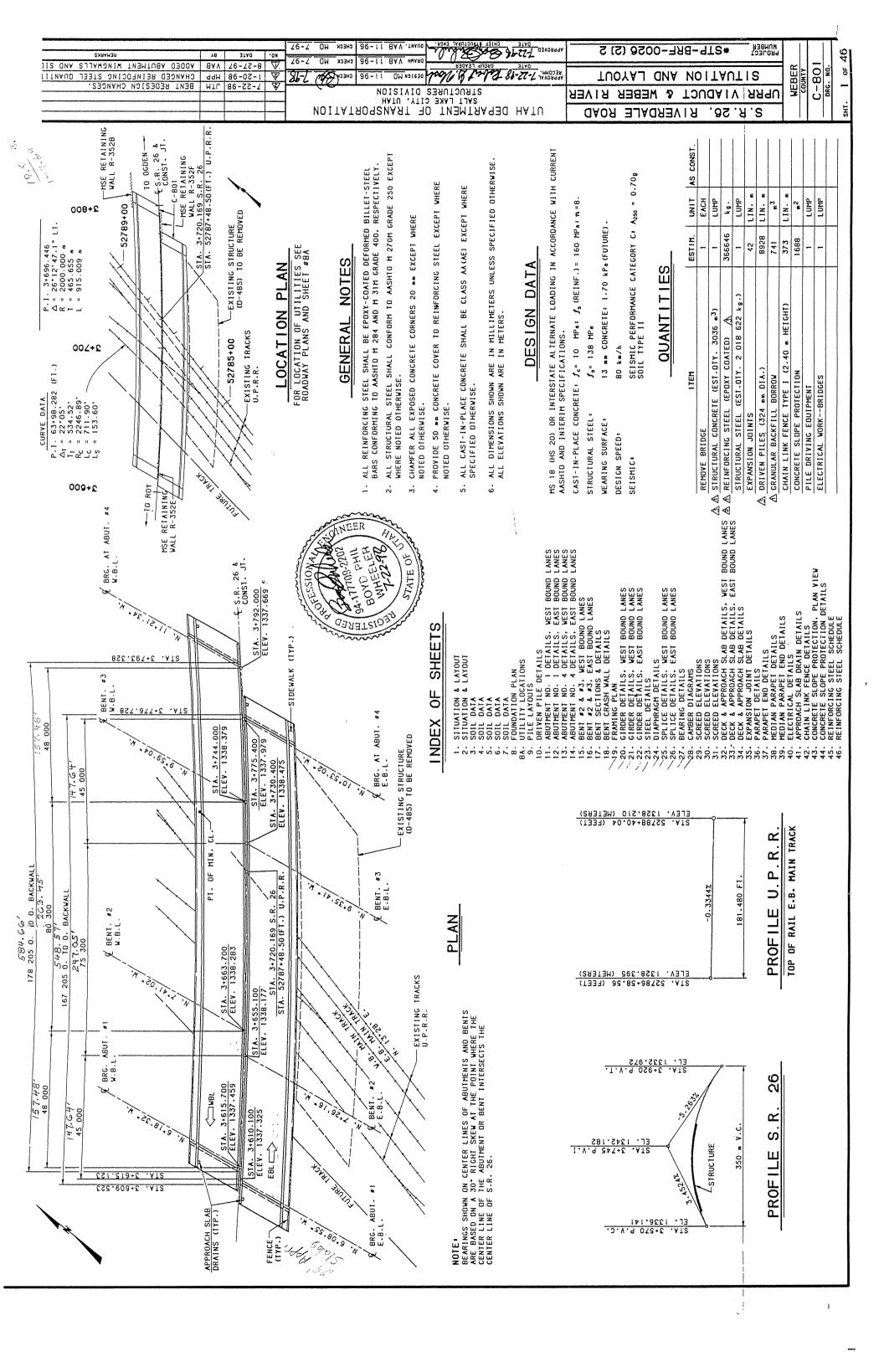
2C-801, UPRR & OGDEN CITY STREET, SR-26, M.P. 2.10 4C-801, UPRR & OGDEN CITY STREET, SR-26, M.P. 2.10 OC-802, WEBER RIVER, SR-26, M.P. 1.96 4C-904, EAST OF 31st INTERCHANGE, SR-79, M.P. 2.42 2C-905, EAST OF 31st INTERCHANGE SR-79, M.P. 2.24

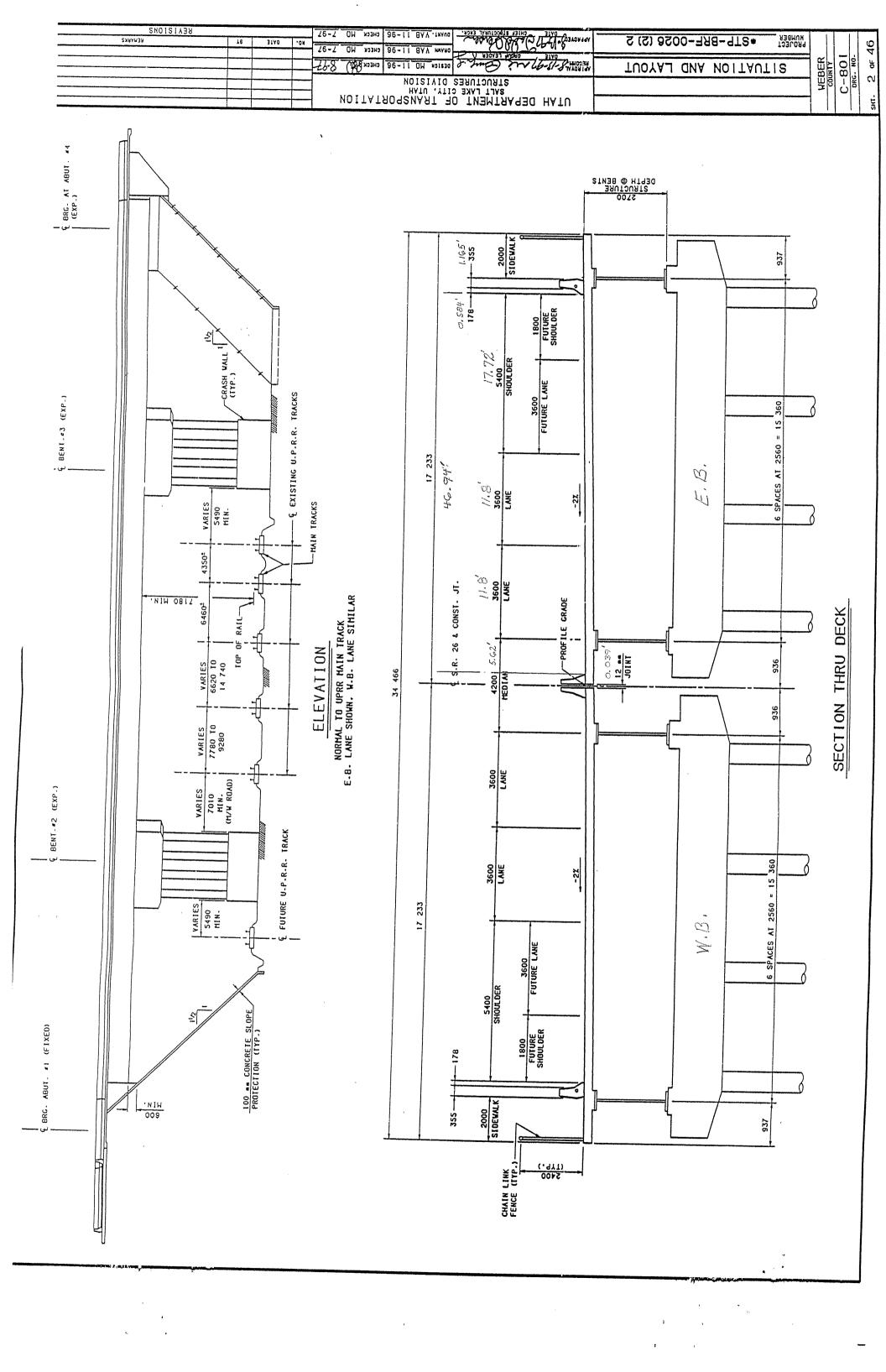


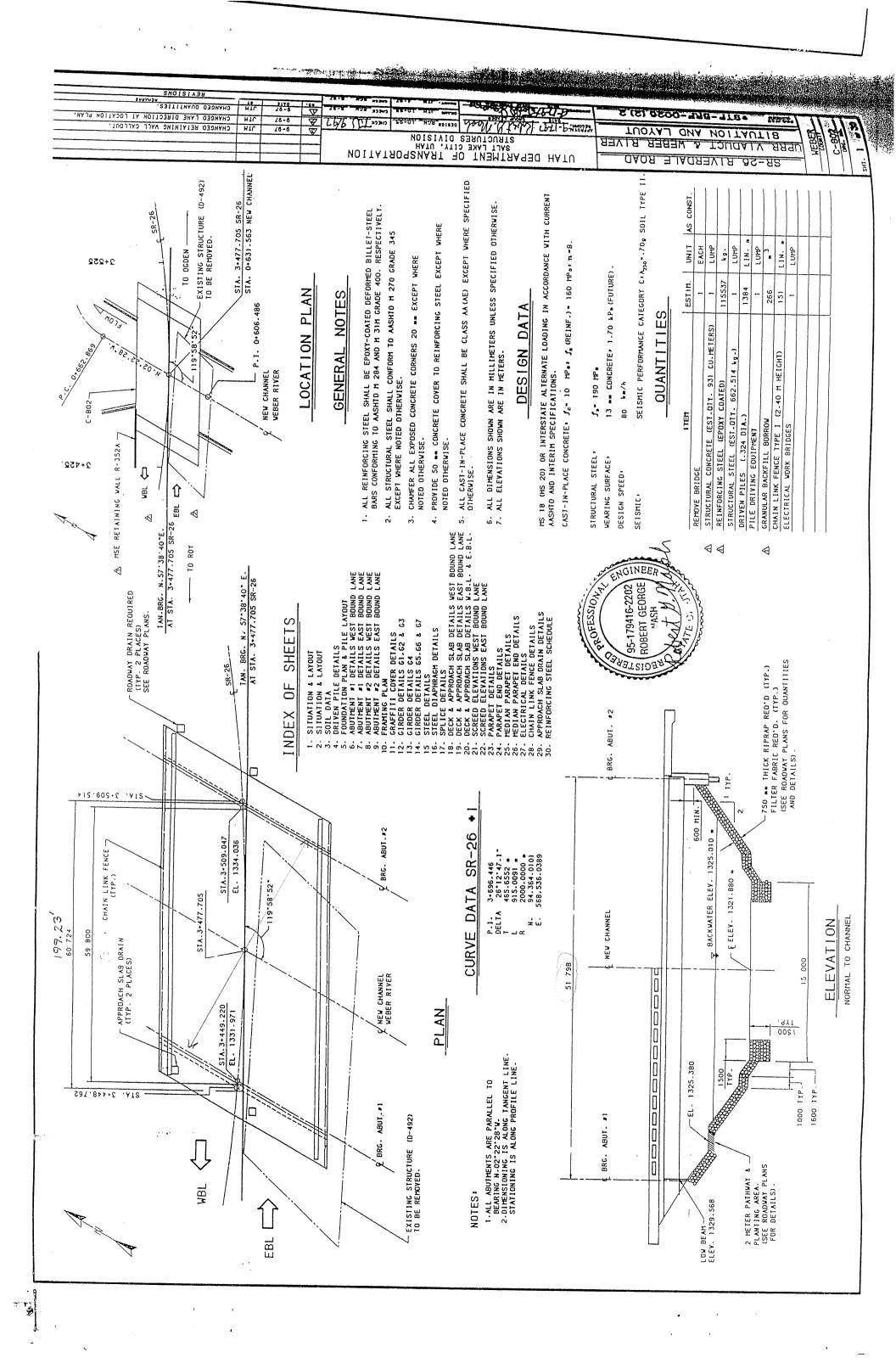
NOTE: SEE DRAWINGS FOR PARAPET DIMENSIONS

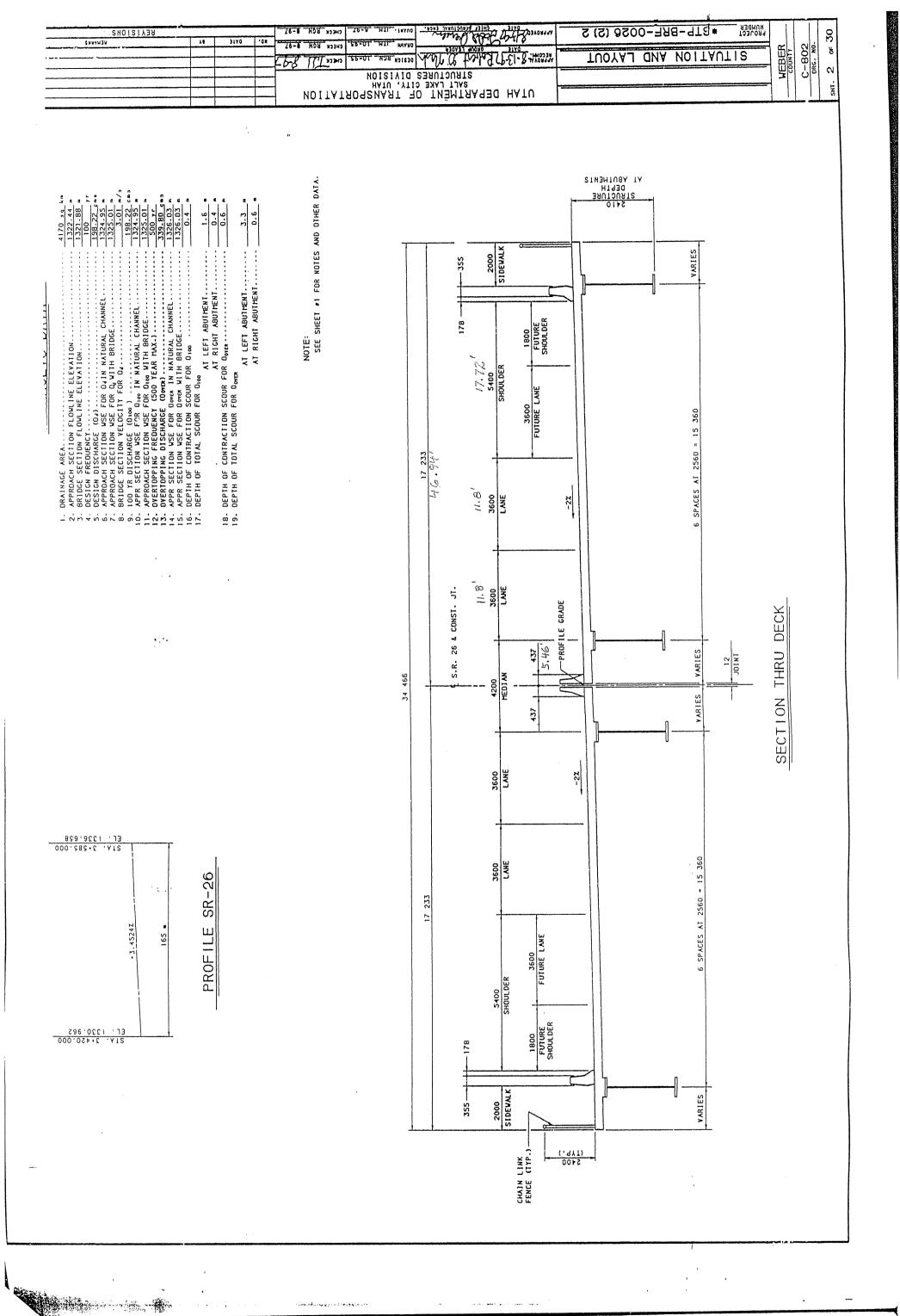
NOTES:

- 1. APPLY POLYMER OVERLAY TO ENTIRE DECK AND APPROACH SLAB SURFACES.
- 2. APPLY CLEAR PENETRATING CONCRETE SEALER TO TRAFFIC FACE AND TOP OF PARAPET.
- 3. REPAIR PARTIAL DEPTH POTHOLES IN DECK AND APPROACH SLAB SURFACES WITH POLYMER MATERIAL UP TO 1" DEPTH. THE REPAIR WORK SHOULD BE INCLUDED IN THE COST OF POLYMER OVERLAY









SALT LAKE CITY, UTAH

TRIE NUE 23343

Lb/6 (II NO 3HO

1179

16-6

HIL

CHANGED OUAHIITIEF.

THE CHANGED LANE DIRECTION AT LOCATION

CHANGED RETAINING WALL CALLOUT.

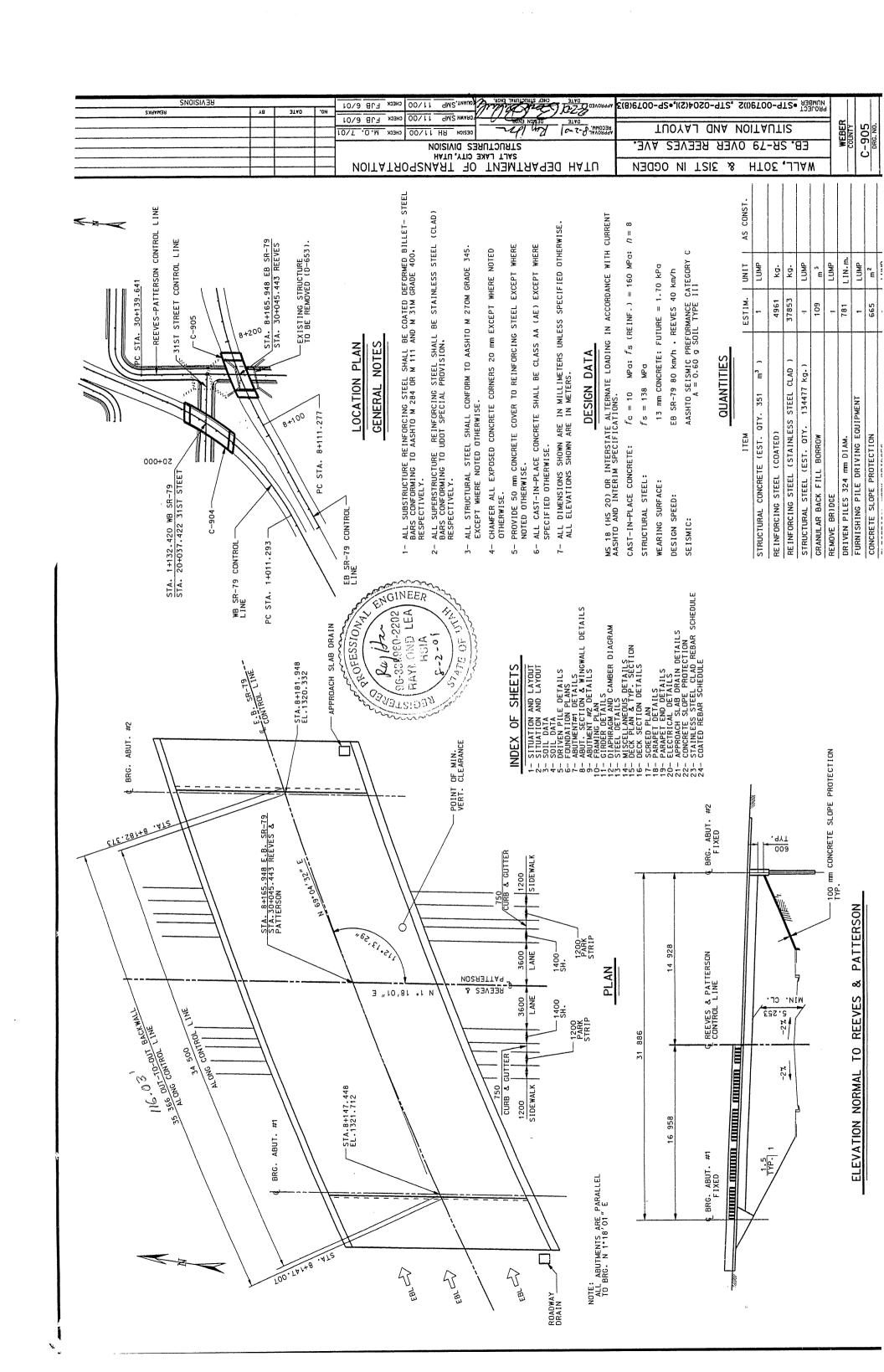
*87P-BRE-0026 (2)

TUOYAJ DNA NOITAUTIS

DPRR VIADUCT & WEBER RIVER

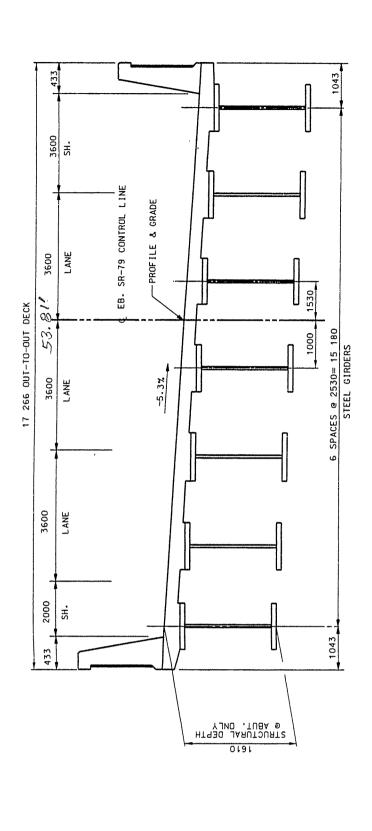
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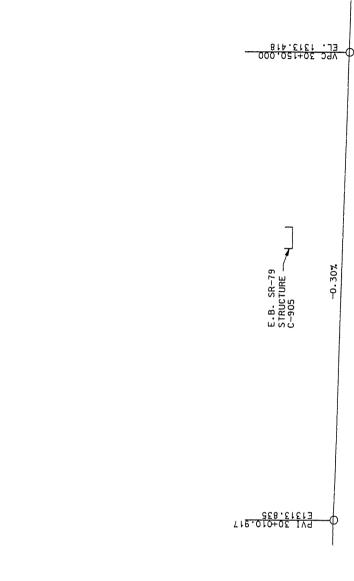
C-802

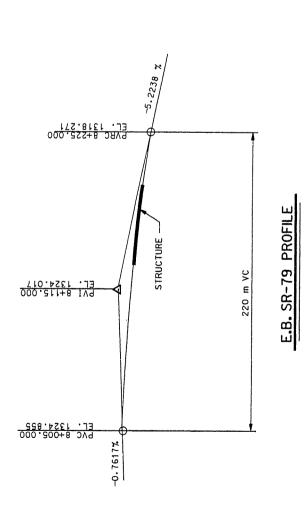


BEVISIONS				PROVED 7221 CHEE STRUCTHRIN ENGR OUT SMP 11/00 CHECK FJB 6/01	" C(0)C100 IC-1/(7)F070 ILC1 7/()C100 ILC- N3880N		
BENYBKZ	78	3TAG	'ON	111100000000000000000000000000000000000	PROJECT • STP-0079(I)2 ,STP-0204(2),•SP-0019(8)3	11	
				OATE - DESCRI ENGB // DORAWH SMP 11/00 CHECK FJB 6/01		ا ا۔	L
				PROVALG-2-2 / Cury / Design RH 11/00 CHECK M.O. 7/01	TUOYAJ QNA NOITAUTIS		8
			├	STRUCTURES DIVISION	EB. SR-79 OVER REEVES AVE.	WEBE	ď
th man to the second se				SALT LAKE CITY, UTAH			
				UOITATAOGSNAAT 30 TNAMTAAG30 HATU	WALL, 30TH & 31ST IN OGDEN		

TYPICAL SECTION THRU DECK







REEVES & PATTERSON PROFILE

+5.30%

STA. 8+270

-2.00% -5.30% -5.30%

+2.00%

STA. 8+100 STA. 8+140

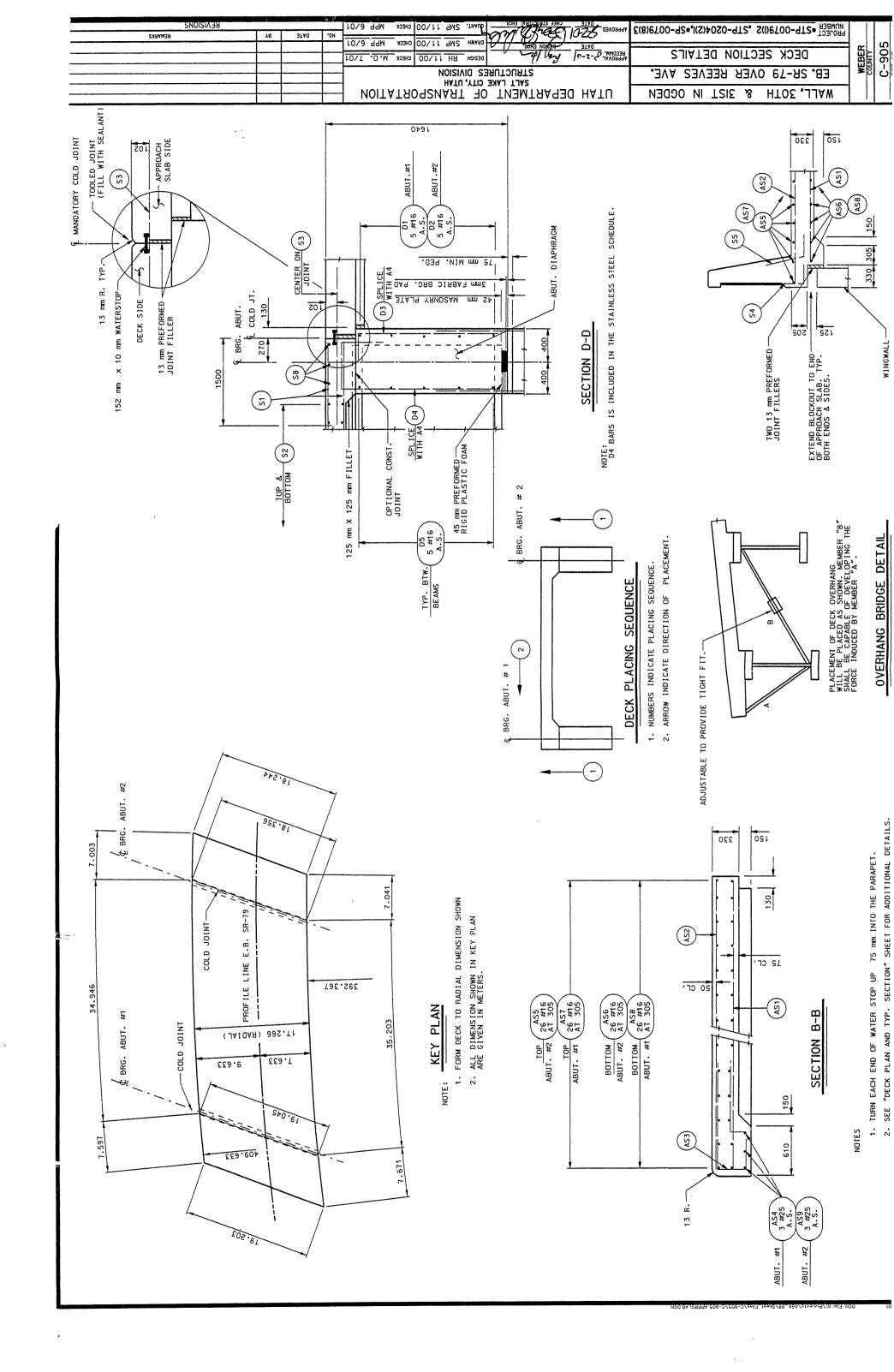
STATION

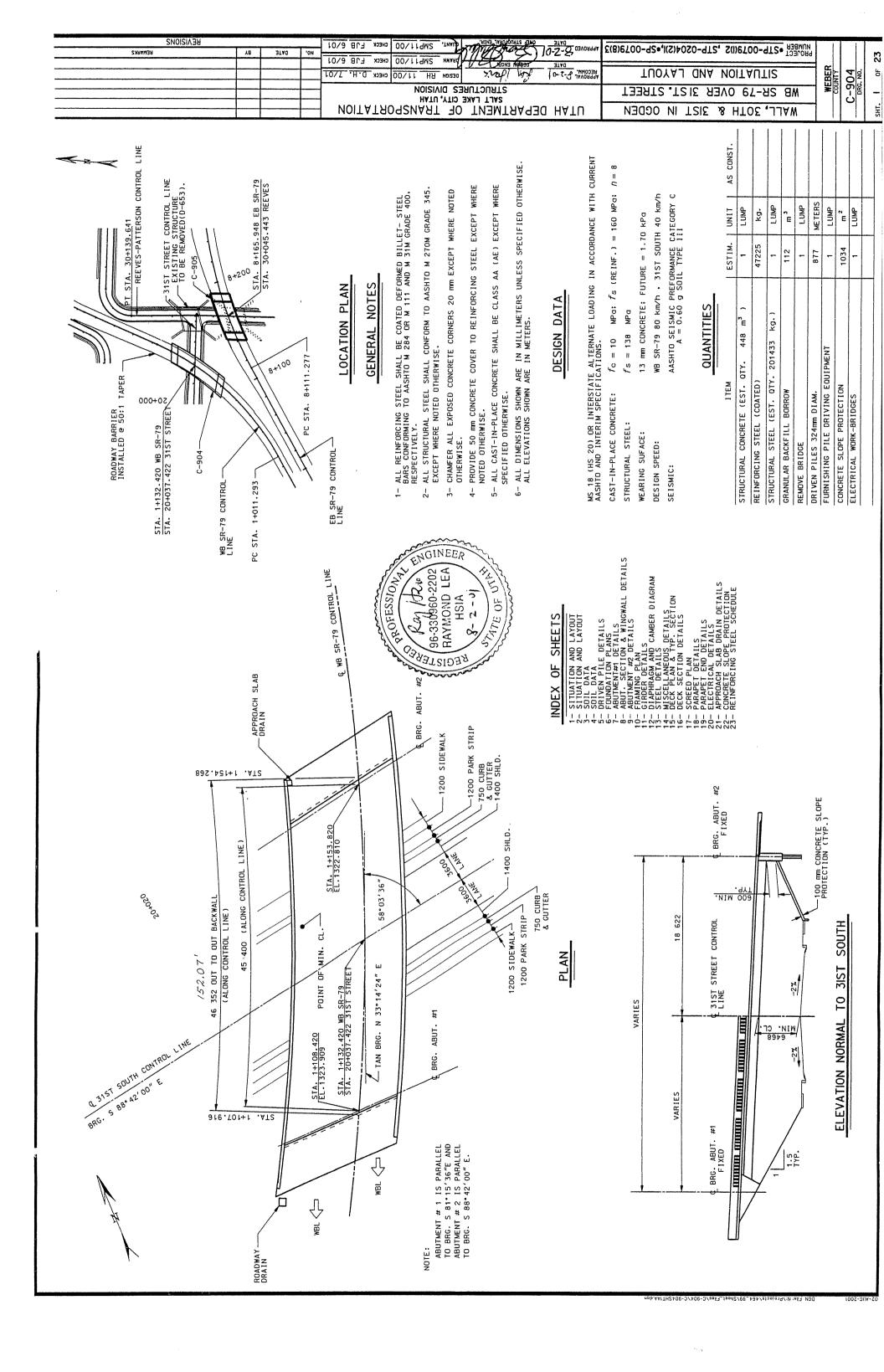
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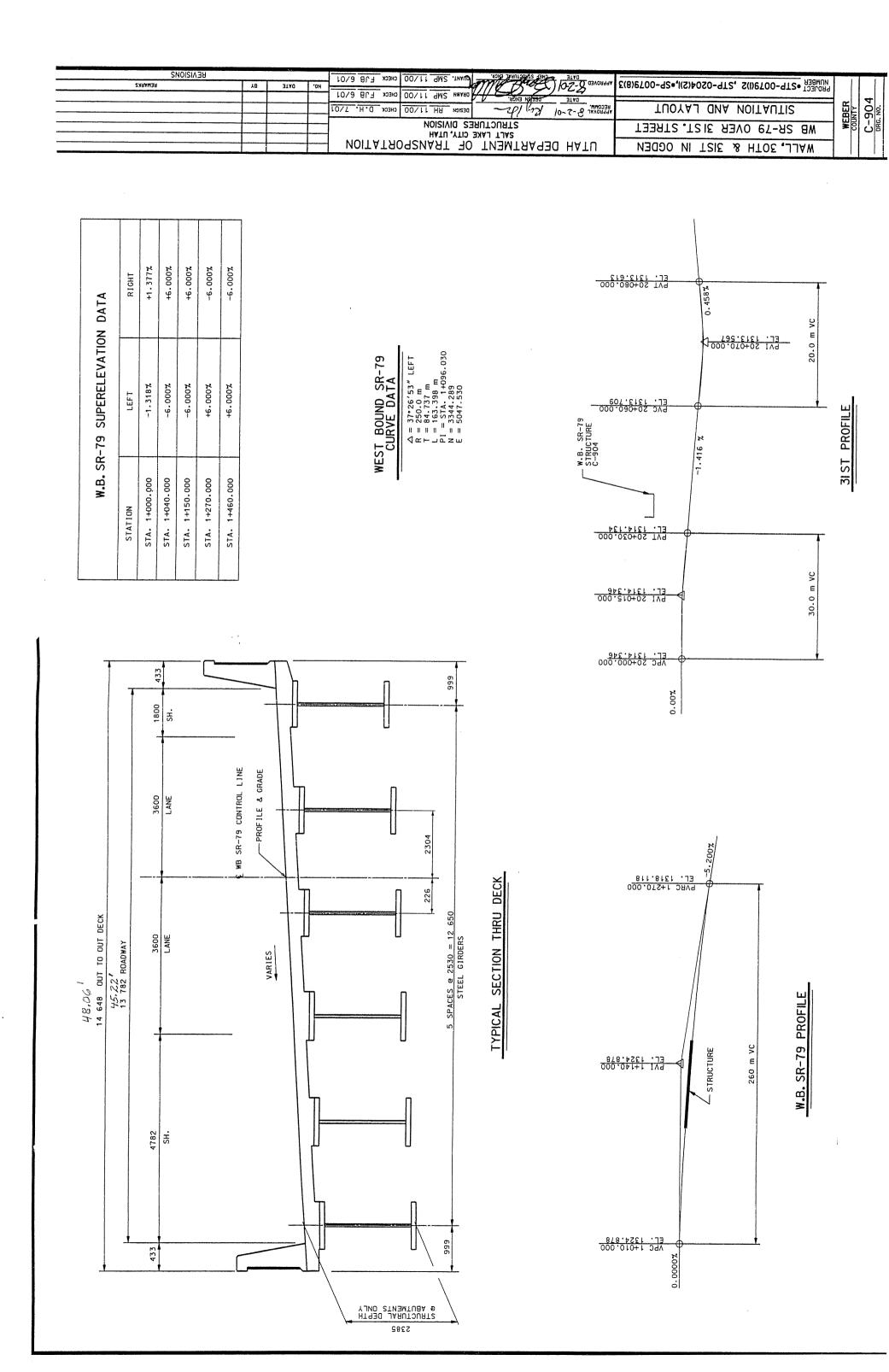
RIGHT

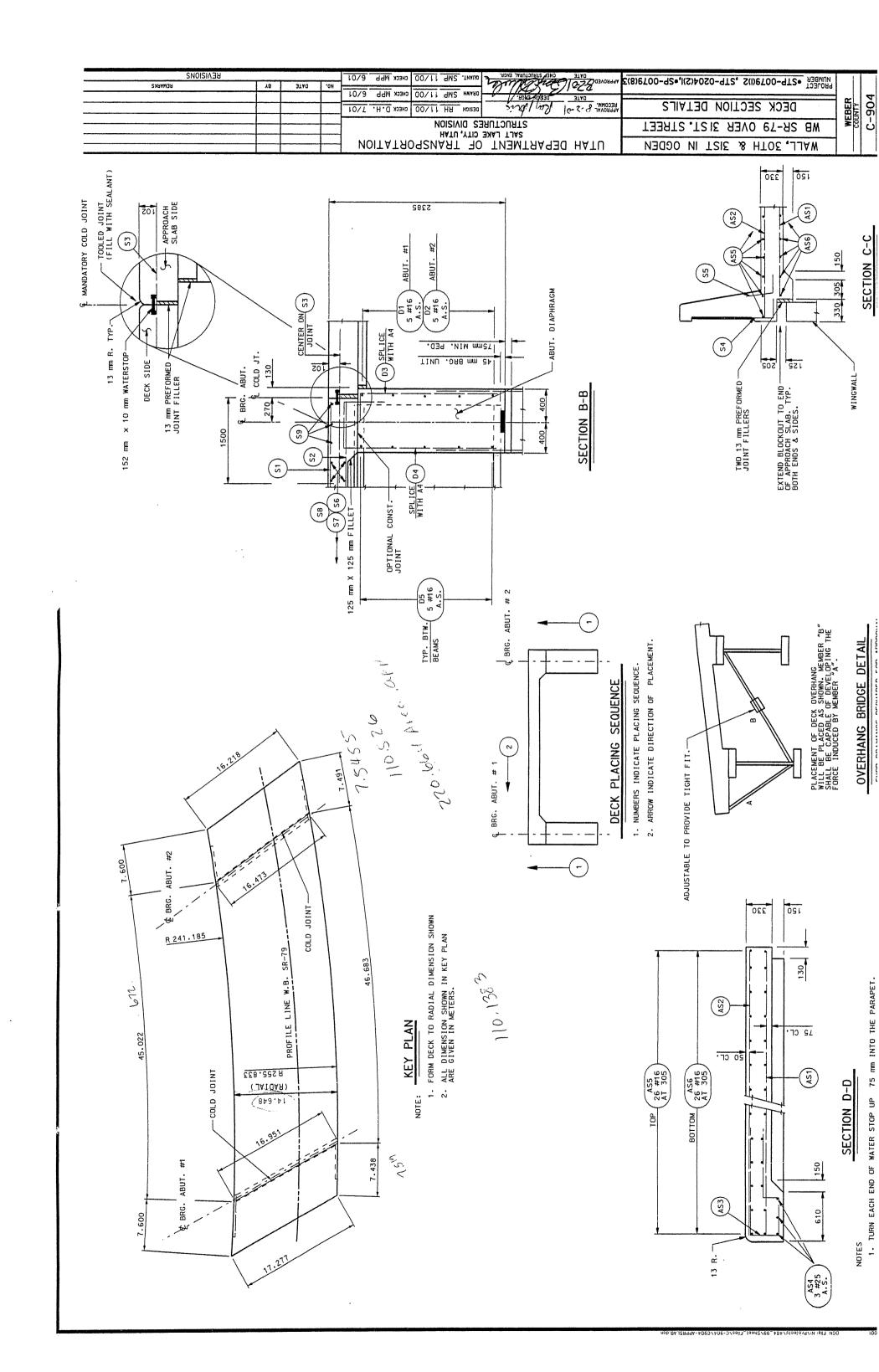
E.B. SR-79 SUPERELEVATION DATA

CURVE DATA E.B. SR-79 \$\times = 30.03' 54.23'' RIGHT R = 400.000 T = 107.423 L = 209.894 PI = STA 8+218.700 N = 3381.483 E = 5153.269









X. Standard Drawings Index

STANDARD DRAWINGS INDEX (Initial, Dated 01/01/05)

UTAH DEPARTMENT OF TRANSPORTATION

U	NUMBER	TITLE	CURRENT DATE
		Advanced Traffic Management System (AT)	
U	AT 1	Legend Sheet	01/01/05
	AT 2	Ramp Meter Details	01/01/05
	AT 3	Ramp Meter Sign Panel	01/01/05
	AT 4	Typical Ramp Meter Signal Head Mounting	01/01/05
	AT 5	Loop Installation	01/01/05
	AT 6	Conduit Details	01/01/05
	AT 7	Polymer-Concrete Junction Box Details	01/01/05
	AT 8	ATMS Cabinet w/120V Disconnect	01/01/05
	AT 9	ATMS Cab With Stepdown Transformer	01/01/05
	AT 10	Domed CCTV Details	01/01/05
	AT 11	CCTV Pole Details	01/01/05
	AT 12	CCTV Pole Foundation For Dedicated CCTV Pole	01/01/05
	AT 13	120V VMS Cab Foundation Details	01/01/05
	AT 14	Weigh In Motion Piezo Details	01/01/05
	AT 15	RWIS Site And Foundation Details	01/01/05
	AT 16	RPU Tower Base And Service Pad Layout	01/01/05
	AT 17	Ground Rod Installation And Tower Grounding	01/01/05
		Barriers (BA)	
	BA 1A	Precast Concrete Full Barrier Standard Section	01/01/05
	BA 1B	Precast Concrete Full Barrier Standard Section	01/01/05
	BA 1C	Precast Concrete Barrier Terminal For Speed ≤ 40 MPH	01/01/05
	BA 1D	Precast Concrete Full Section Median Installation	01/01/05
	BA 1E	Precast Concrete Full Section Shoulder Applications	01/01/05
	BA 2	Precast Concrete Half Barrier Standard Section	01/01/05

U	NUMBER	TITLE	CURRENT
	BA 3	Cast In Place Constant Slope Barrier	DATE 01/01/05
		•	
	BA 4A	W-Beam Guardrail Hardware	01/01/05
	BA 4B	W-Beam Guardrail Transition With Jersey Barrier Shape	01/01/05
	BA 4C	Not Used	
	BA 4D	W-Beam Guardrail Anchor Type I	01/01/05
	BA 4E	W-Beam Guardrail Installations	01/01/05
	BA 4F	W-Beam Guardrail Typicals Divided Roadways	01/01/05
	BA 4G	W-Beam Guardrail Typical Multilane Arterial	01/01/05
	BA 4H	W-Beam Guardrail Typical 2 Lane 2 Way	01/01/05
	BA 4I	W-Beam Guardrail Buried In Backslope Terminal	01/01/05
	BA 4J	W-Beam Guardrail Buried In Backslope Terminal With Rub Rail	01/01/05
	BA 4K	W-Beam Guardrail Buried In Backslope Terminal Anchor	01/01/05
	BA 4L	W-Beam Guardrail Curve Details	01/01/05
	BA 4M	W-Beam Guardrail Nested Guardrail 12' 6" Span	01/01/05
	BA 4N	W-Beam Guardrail Nested Guardrail 18' 9" Span	01/01/05
	BA 4O	W-Beam Guardrail Nested Guardrail 25' Span	01/01/05
	BA 4P	W-Beam Guardrail With Precast Barrier For Span > 25'	01/01/05
		Catch Basins And Cleanouts (CB)	
	CB 1	Curb and Gutter Inlet	01/01/05
	CB 2	Open Curb Inlet	01/01/05
	CB 3	Shallow Catch Basin	01/01/05
	CB 4	Open Curb Shallow Catch Basin	01/01/05
	CB 5A	Standard Catch Basin and Cleanout Box	01/01/05
	CB 5B	Standard Catch Basin and Cleanout Box Section	01/01/05
	CB 6A	Drop Inlet Type "A"	01/01/05
	CB 6B	Berm Apron With Drop Inlet Type "A"	01/01/05
	CB 7A	Drop Inlet Type "B"	01/01/05
	CB 7B	Normal Apron With Drop Inlet Type "B"	01/01/05

U	NUMBER	TITLE	CURRENT DATE
	CB 8A	Double Catch Basin	01/01/05
	CB 8B	Double Catch Basin	01/01/05
	CB 9A	Standard Catch Basin And Cleanout Box Situation And Layout	01/01/05
	CB 9B	Standard Catch Basin And Cleanout Box Section Details	01/01/05
	CB 9C	Standard Catch Basin And Cleanout Box Schedule Of Installation 18" to 42" RCP 12" to 48" CMP	01/01/05
	CB 9D	Standard Catch Basin And Cleanout Box Schedule Of Installation 48" to 66" RCP 60" to 78" CMP	01/01/05
	CB 10A	Standard Catch Basin And Cleanout Box Situation And Layout	01/01/05
	CB 10B	Standard Catch Basin And Cleanout Box Section Details	01/01/05
	CB 10C	Standard Catch Basin And Cleanout Box Schedule Of Installation 42" to 60" RCP 48" to 72" CMP	01/01/05
	CB 11	Standard Manhole	01/01/05
		Crash Cushions (CC)	
	CC 1	Crash Cushion Markings	01/01/05
	CC 2	Crash Cushion Drainage Details Guideline A	01/01/05
	CC 3	Crash Cushion Drainage Details Guideline B	01/01/05
	CC 4	Details For Placement Crash Cushions Type A, B, And D	01/01/05
	CC 5	Grading And Placement Details Crash Cushion Type C	01/01/05
	CC 6	Crash Cushion Type E Sand Barrel Details	01/01/05
	CC 7	Grading And Installation Details Crash Cushion Type F	01/01/05
	CC 8	Grading And Installation Details Crash Cushion Type G	01/01/05
	CC 9A	Grading And Installation Details Crash Cushion Type H	01/01/05
	CC 9B	Grading And Installation Details Crash Cushion Type H	01/01/05
		Diversion Boxes (DB)	
	DB 1A	Standard Diversion Box/Cover Plate/Grating For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1B	Standard Diversion Box Hinged Lid Details For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1C	Standard Diversion Box Bicycle - Safe Grating Details For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1D	Standard Diversion Box Three Gate Box Sections For 18" DIA. or 24" DIA. Pipe	01/01/05

U	NUMBER	TITLE	CURRENT DATE
	DB 1E	Standard Diversion Box Three Gate Box Sections For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 1F	Standard Diversion Box Three Gate Box Sections For 18" DIA. or 24" DIA. Pipe	01/01/05
	DB 2A	Standard Diversion Box w/Interchangeable Walls, Bottom Slab, Walls And Apron Details	01/01/05
	DB 2B	Standard Diversion Box w/Interchangeable Walls, Quantities Schedule	01/01/05
	DB 2C	Standard Diversion Box w/Interchangeable Walls, Hand Slide Gate Details	01/01/05
	DB 2D	Standard Diversion Box Type "G" Hand Slide Gate Details	01/01/05
	DB 2E	Standard Diversion Box Hinged Lid (Solid Cover Plate) Type "A" Details Type I Plan	01/01/05
	DB 2F	Standard Diversion Box Hinged Lid (Solid Cover Plate) Type "A" Details Type II Plan	01/01/05
	DB 2G	Standard Diversion Box Hinged Lid Solid Cover Type "B" Details	01/01/05
	DB 2H	Standard Diversion Box Hinged Lid Solid Cover Type "B" And "C" Details	01/01/05
	DB 3A	Standard Diversion Box With Manhole Cover Situation And Layout	01/01/05
	DB 3B	Standard Diversion Box With Manhole Cover Up To 42" RCP And Up To 54" CMP	01/01/05
	DB 3C	Standard Diversion Box With Manhole Cover 48" to 72" RCP And 60" to 84" CMP	01/01/05
	DB 4	Standard Transition Concrete Lined Ditch To Pipe Or Diversion Box	01/01/05
		Design Drawings (DD)	
	DD 1	Superelevation And Widening	01/01/05
	DD 2	Surface Ditch, Benched Slope, And Cut Ditch Details	01/01/05
	DD 3	Climbing Lanes	01/01/05
	DD 4	Geometric Design for Freeways (Roadway)	01/01/05
	DD 5	Entrance And Exit Ramps At Crossroads	01/01/05
	DD 6	Entrance And Exit Ramp Geometrics	01/01/05
	DD 7	Freeway Crossover	01/01/05
	DD 8	Structural Geometric Design Standards For Clearances	01/01/05
	DD 9	Structural Geometric Design Standards	01/01/05

U	NUMBER	TITLE	CURRENT DATE
	DD 10	Railroad Clearances At Highway Overpass Structures	01/01/05
	DD 11	Rural Multi Lane Highways Other Than Freeways	01/01/05
	DD 12	Rural Two Lane Highways	01/01/05
	DD 13	Frontage And Access Roads (Under 50 ADT)	01/01/05
	DD 14	Typical Rural 2 Lane Road With Median Lane And Deceleration Lane For Intersecting Crossroads	01/01/05
		Drainage (DG)	
	DG 1	Fill Height for Metal Pipe (Steel)	01/01/05
	DG 2	Fill Height for Metal Pipe (Aluminum)	01/01/05
	DG 3	Maximum Fill Height For HDPE And PVC Pipes	01/01/05
	DG 4	Pipe Minimum Cover	01/01/05
	DG 5	Plastic Pipe, Metal Pipe Or Pipe Arch Culvert Bedding	01/01/05
	DG 6	Precast Concrete Pipe Culvert	01/01/05
	DG 7	Gasketted Joints Or Coupling Bands For CMP	01/01/05
	DG 8	Metal Culvert End Section	01/01/05
	DG 9	Miscellaneous Pipe Details	01/01/05
		Environmental Controls (EN)	<u> </u>
	EN 1	Temporary Erosion Control (Check Dams)	01/01/05
	EN 2	Temporary Erosion Control (Silt Fence)	01/01/05
	EN 3	Temporary Erosion Control (Slope Drain And Temporary Berm)	01/01/05
	EN 4	Temporary Erosion Control (Drop Inlet Barriers)	01/01/05
	EN 5	Temporary Erosion Control (Sediment Trap And Curb Inlet Barrier)	01/01/05
		Fence And Gates (FG)	
	FG 1A	Right Of Way Fence And Gates (Wood Post)	01/01/05
	FG 1B	Right Of Way Fence And Gates (Wood Post)	01/01/05
	FG 2A	Right Of Way Fence And Gates (Metal Post)	01/01/05
	FG 2B	Right Of Way Fence And Gates (Metal Post)	01/01/05
	FG 3	Swing Gates Type I For Gates Less Than 17'	01/01/05
	FG 4	Deer Gates	01/01/05

U NUMBER	TITLE	CURRENT DATE	
FG 5	Swing Gates Type II For Gates Wider Than 17'	01/01/05	
FG 6	Chain Link Fence	01/01/05	
	Grates, Frames, And Trash Racks (GF)		
GF 1	Manhole Frame And Grated Cover	01/01/05	
GF 2	Manhole Frame And Solid Cover	01/01/05	
GF 3	Rectangular Grate And Frame	01/01/05	
GF 4	Directional Flow Grate And Frame	01/01/05	
GF 5	Solid Cover And Frame	01/01/05	
GF 6	Manhole Steps	01/01/05	
GF 7	Standard Screw Gate And Frame	01/01/05	
GF 8	2' x 2' Grate And Frame	01/01/05	
GF 9	28" x 24" Directional Flow Grate And Frame	01/01/05	
GF 10	Standard Trash Racks 90 ° X-ing Angle	01/01/05	
GF 11	Standard Trash Racks	01/01/05	
GF 12	Standard Trash Racks	01/01/05	
GF 13	Open Curb Inlet Grate and Frame	01/01/05	
GF 14	Solid Cover For Std Dwg DB 1 MS-18 Loading	01/01/05	
GF 15	Standard Screw Gate And Frame	01/01/05	
	General Road Work (GW)		
GW 1	Raised Median And Plowable End Section	01/01/05	
GW 2	Concrete Curb And Gutter	01/01/05	
GW 3	Concrete Curb And Gutter Details	01/01/05	
GW 4	Concrete Driveways And Sidewalks	01/01/05	
GW 5A	Pedestrian Access	01/01/05	
GW 5B	Pedestrian Access	01/01/05	
GW 5C	Pedestrian Access	01/01/05	
GW 6	Right Of Way Marker	01/01/05	
GW 7	Newspaper And Mailbox Stop Layout	01/01/05	
GW 8	Newspaper And Mailbox Support Hardware	01/01/05	

U	NUMBER	TITLE	CURRENT DATE	
	GW 9	Delineation Hardware	01/01/05	
	GW 10	Delineation Application	01/01/05	
	GW 11	Sidewalks And Shoulders On Urban Roadways	01/01/05	
		Paving (PV)		
	PV 1	Joints For Highways With Concrete Traffic Lanes And Shoulders	01/01/05	
	PV 2	Pavement/Approach Slab Details	01/01/05	
	PV 3	Concrete Pavement Details For Urban And Interstate	01/01/05	
	PV 4	Concrete Pavement Details For Urban And Interstate	01/01/05	
	PV 5	Urban Concrete Pavement Details	01/01/05	
	PV 6	Rumble Strips	01/01/05	
	PV 7	Rumble Strips - Typical Application	01/01/05	
	PV 8	Note Used		
	PV 9	Dowel Bar Retrofit	01/01/05	
		Signals (SL)		
	SL 1A	Traffic Signal Mast Arm Pole And Luminaire Extension	01/01/05	
	SL 1B	Traffic Signal Mast Arm Pole And Luminaire Extension	01/01/05	
	SL 2	Traffic Signal Mast Arm Details 30' Thru 75'	01/01/05	
	SL 3	Underground Service Pedestal Details	01/01/05	
	SL 4	Traffic Signal Mast Arm Pole Foundation	01/01/05	
	SL 5	Traffic Signal Pole	01/01/05	
	SL 6	Pole Mounted Power Source Details	01/01/05	
	SL 7	Span Wire Signal Pole Details	01/01/05	
	SL 8	Signal Head Details	01/01/05	
	SL 9	Pedestrian Signal Assembly	01/01/05	
	SL 10	Traffic Signal Controller Base Details	01/01/05	
	SL 11	Traffic Signal Loop Detector Details	01/01/05	
	SL 12	Traffic Counting Loop Detector Details	01/01/05	
	SL 13	Not Used		

U	NUMBER	TITLE	CURRENT DATE
	SL 14	Highway Luminaire Pole Ground Mount	01/01/05
	SL 15	Luminaire Slip Base Details	01/01/05
	SL 16	Highway Luminaire Pole Barrier Mount	01/01/05
	SL 17	Highway Luminaire Pole Foundation Extension	01/01/05
	SL 18	Single Transformer Substation Details	01/01/05
		Signs (SN)	
	SN 1	Bridge Load Limits Signs	01/01/05
	SN 2	School Speed Limit Assembly	01/01/05
	SN 3	Overhead School Speed Limit Assembly	01/01/05
	SN 4	Flashing Stop Sign	01/01/05
	SN 5	Typical Installation For Milepost Signs	01/01/05
	SN 6	Speed Reduction Sign Sequence	01/01/05
	SN 7	Placement of Ground Mounted Signs	01/01/05
	SN 8	Ground Mounted Timber Sign Post (P1)	01/01/05
	SN 9	Ground Mounted Tubular Steel Sign Post (P2)	01/01/05
	SN 10	Ground Mounted Square Steel Sign Post (P3)	01/01/05
	SN 11	Slipbase Ground Mounted Tubular Steel Sign Post (P4)	01/01/05
	SN 12A	Ground Mounted Sign Installation Details	01/01/05
	SN 12B	Ground Mounted Sign Installation Details	01/01/05
	SN 12C	Ground Mounted Sign Installation Details	01/01/05
		Striping (ST)	1
	ST 1	Object Markers "T" Intersection And Pavement Transition Guidance	01/01/05
	ST 2	Freeway Crossover Markings	01/01/05
U	ST 3	Typical Pavement Markings	01/01/05
	ST 4	Crosswalks, Parking And Intersection Approaches	01/01/05
	ST 5	Painted Median And Auxiliary Lane Details	01/01/05
	ST 6	Passing/Climbing Lanes Traffic Control	01/01/05
	ST 7	Pavement Markings And Signs At Railroad Crossing	01/01/05
	ST 8	Plowable Pavement Markers	01/01/05

U	NUMBER	TITLE	CURRENT DATE
	ST 9	School Crossing And School Message	01/01/05
		Structures And Walls (SW)	
	SW 1A	Welded End Guard Unit	01/01/05
	SW 1B	Precast Concrete Cattle Guard	01/01/05
	SW 2	Noise Wall Placement Area	01/01/05
	SW 3A	Precast Concrete Noise Wall 1 Of 2	01/01/05
	SW 3B	Precast Concrete Noise Wall 2 Of 2	01/01/05
	SW 4A	Precast Concrete Retaining/Noise Wall 1 Of 2	01/01/05
	SW 4B	Precast Concrete Retaining/Noise Wall 2 Of 2	01/01/05
		Traffic Control (TC)	
U	TC 1A	Construction Zone Channelization Devices	01/01/05
U	TC 1B	Construction Zone Signing	01/01/05
U	TC 2A	Traffic Control General	01/01/05
U	TC 2B	Traffic Control General	01/01/05
U	TC 3	Traffic Control Project Limit Signing	01/01/05
U	TC 4	Traffic Control Urban Intersections With Roadways Under 50 MPH	01/01/05
U	TC 5	Traffic Control Urban Intersections With Roadways Under 50 MPH	01/01/05
U	TC 6	Traffic Control Pedestrian Routing	01/01/05
U	TC 7	Traffic Control Road Closed, Detour	01/01/05
U	TC 8	Traffic Control Lane Closure	01/01/05
U	TC 9	Traffic Control Multilane Closure	01/01/05
U	TC 10	Traffic Control Expressway And Freeway Crossover/Turn Around	01/01/05
U	TC 11	Traffic Control Exit Ramp Gore	01/01/05
U	TC 12	Traffic Control Entrance Ramp Gore	01/01/05
U	TC 13	Traffic Control Shoulder-Haul Road 01/01/0	
U	TC 14	Traffic Control Flagging Operation	01/01/05
U	TC 15	Traffic Control 2 Lane/2 Way Seal Coat With Cover Material	01/01/05
U	TC 16	Traffic Control Pavement Marking	01/01/05

XI. Equal Opportunity (State Projects)

<u>Selection of Subcontractors, Service Providers, Procurement of Materials and Leasing of Equipment:</u>

Do not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

Notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, have equal opportunity to compete for and perform subcontracts that the contractor enters into pursuant to this contract. Use best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Obtain lists of DBE construction firms from SHA personnel.

Use best efforts to ensure subcontractor compliance with their EEO obligations.

Selection of Labor:

During the performance of this contract, do not discriminate against labor from any other State, possession, or territory of the United States.

Employment Practices:

During the performance of this contract, the Contractor agrees as follows:

Do not discriminate against any employee or applicant for employment because of race, religion, sex, color, national origin, age, or disability. Take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color, national origin, age, or disability. Such action includes, but is not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoffs or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Agree to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Department of Transportation setting forth the provisions of this nondiscrimination clause.

In all solicitations or advertisements for employees state that all qualified applicants receive consideration for employment without regard to race, religion, sex, color, national origin, age, or disability.

Send to each labor union or representative of workers that the Contractor has a collective bargaining agreement or other contract or understanding, a notice to be provided by the State Department of Transportation advising the said labor union or worker' representative of the commitments under this section and post copies of the notice in conspicuous places available to employees and applicants for employment.

In the event of noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further State contracts.

Include the provisions of this Section in every subcontract or purchase order so that such provision will be binding upon each Subcontractor or vendor. Take such action with respect to any subcontract or purchase order as the State Department of Transportation may direct as a means of enforcing such provisions including sanctions for noncompliance.

XII. Special Provisions and Supplemental Specifications

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SECTION 00555M

PROSECUTION AND PROGRESS

PART 1 GENERAL

1.1 RELATED SECTIONS

Add the following paragraphs to Article 1.9, Limitation of Operations

- D. Inform the traveling public of upcoming work 3 days prior to the start of construction and during construction with minimum of 2 Variable Message Signs. Provide message as directed by the Resident Engineer.
- E. Schedule work with approval of the Engineer prior to beginning any portion of this project. No work or lane restrictions will be allowed on holidays or holiday weekends and any special events as determined by the Engineer.
- F. Maintain minimum one 12 ft. traffic lane (two lanes minimum on SR-26) open at all times in each direction. Open all lanes during peak hours (6 AM to 9 AM) and (3 PM to 6 PM) Monday thru Friday and during non-working hours.
- G. Prevent construction debris or any other items from falling onto railroad or into river. Liability and cost for such occurrence will be at Contractor's expense.

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SECTION 00725M

SCOPE OF WORK

Add the following Article to Part 1, General:

1.20 GENERAL INFORMATION

- A. Perform the following Work:
 - 1. 2C-801 and 4C-801
 - a. Place polymer overlay. Seal top and roadway sides of parapet, and columns and bents.
 - b. West bound, partial depth concrete repair required on deck, approach slabs and concrete pavement between 700 West and 300 West.
 - c. East bound, partial depth concrete repair required on deck, approach slabs and concrete pavement between 700 West and 300 West.
 - d. Place pavement marking tape.
 - e. Jack east end approach slabs (2 total)
 - 2. 4C-904
 - a. Place polymer overlay.
 - b. Seal top and roadway sides of parapet.
 - c. Place pavement marking tape.
 - d. Jack both approach slabs (2 total)
 - 3. 2C-905
 - a. Place polymer overlay.
 - b. Seal top and roadway sides of parapet.
 - c. Place pavement marking tape
 - d. Jack both approach slabs (2 total)
 - 4. 0C-802
 - a. Place polymer overlay.
 - b. Seal top and roadway sides of parapet.
 - c. Place pavement marking tape.
 - d. Jack east end approach slab (1 total)
- B. The Utah Department of Transportation reserves the right to cancel all or portions of the contract

Scope of Work 00725M – Page 1 of 2

Delete Paragraphs K and L of 1.12 RAILWAY-HIGHWAY PROVISIONS and replace with the following:

- K. Use \$990.00 per day to determine the cost of Railroad Flagging and Inspection required under the terms of Paragraph J. Include these costs in mobilization.
- L. In conjunction with the Right of Entry Agreement, arrange for and pay Railroad Flagging and Inspection costs directly to the Railroad Company. Right of Entry Application forms can be obtained from the Region Utility and Railroad Engineering Coordinator. Reference USDOT/AAR Crossing No. 859 646 S at Mile Post 989.81 on the Evanston Subdivision in correspondence with the Union Pacific Railroad Company.

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SECTION 00820M

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Delete Article 1.16 and replace with the following:

1.16 INSURANCE REQUIREMENTS

- A. Workers' Compensation Insurance
 - 1. Provide Workers' Compensation Insurance to cover full liability. As a minimum, comply with the statutory limits defined by the State of Utah.
- B. General Liability Insurance
 - 1. Provide General Liability insurance with the following minimum limits of liability:
 - a. \$1,000,000 Bodily Injury and Property Damage Each Accident
 - b. \$2,000,000 General Aggregate
 - c. \$2,000,000 Products and Complete Operations Annual Aggregate
- C. Excess General Liability Insurance
 - 1. Provide Excess Liability Insurance with the following minimum limits:
 - a. \$5.000.000 Each Claim
 - b. \$5,000,000 Aggregate
- E. Railroad Protective Insurance
 - 1. Provide Railroad Protective Insurance with the following minimum limits:
 - a. \$5,000,000 Each Claim
 - b. \$10,000,000 Aggregate
- D. Automobile Liability Insurance
 - 1. Provide Automobile Liability Insurance for claims arising from the ownership, maintenance, or use of motor vehicles involved in project work with the following minimum limits:
 - a. \$1,000,000 Combined single Limit Bodily Injury and Property Damage per Occurrence
- E. Provide the following for all required liability insurance policies:
 - 1. Where and when applicable, name as insured, only in respect to work to be performed under this Contract, the State of Utah and all institutions, agencies, departments, authorities, and instrumentalities, and while acting

- within the scope of their duties, all volunteers as well as members of governing bodies, boards, commissions, and advisory committees.
- 2. Coverage for the above insured is primary and not contributing.
- 3. Incorporate into the insurance policy this statement: "Insurance coverage is extended to include claims reported up to one year beyond the date of substantial completion of this Contract."
- F. Provide UDOT with certificates of insurance showing coverage as required above at the time the contract is executed and maintain the policy in force during the entire period of the Contract. The certificates will also state that the policies required are endorsed to give UDOT (the Engineer) not less than 30 days prior notice in the event of cancellation or change in coverage.
- G. Regardless of the Contractor insurance requirements required in this section, insolvency, bankruptcy, or failure of any insurance company to pay all claims accrued does not relieve Contractor of any obligations.
- H. Endorse all policies to include waivers of subrogation in favor of UDOT.

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SECTION 02763S

PARTIAL DEPTH CONCRETE REPAIR

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Warranty specifications for application of flexible partial depth concrete repair material.

1.2 RELATED SECTIONS

- A. Section 02752: Portland Cement Concrete Pavement
- B. Section 03152: Concrete Joint Control
- C. Section 01554: Traffic Control

PART 2 PRODUCTS

2.1 FLEXIBLE PARTIAL DEPTH CONCRETE REPAIR MATERIAL:

A. Provide material that will remain flexible throughout anticipated temperature extremes to avoid cracking, delaminating and premature material loss due to thermal climatic changes and traffic loadings. Material is to be grey in color.

2.2 MATERIAL ACCEPTANCE:

A. Provide proof that material proposed has been used successfully on high volume concrete pavement projects through at least one winter season prior to preconstruction conference.

- B. Materials currently approved for use are Crafco, Techcrete TBR.
 For information contact Crafco Inc. 800-528-8242, Dave Allshouse.
 420 N.Roosevelt Ave., Chandler Az. 85226 & Deery American Corporation,
 Recessed Concrete Repair Mastic Neutral. For information contact Sam Keurl, 800 227-4059.
- C. Use of materials above or other material contingent upon meeting terms of this Special Provision to the satisfaction of the Engineer.

2.3 MANUFACTURER WARRANTY/WARRANTY BOND:

- A. Manufacturer or Material Supplier shall provide a written warranty and a warranty bond equal to the total dollar value of the materials furnished to the project valid for a minimum of three years from the date of acceptance by the Engineer.
- B. Provide warranty and warranty bond prior to payment for material.

2.4 CONTRACTOR WARRANTY:

- A. Prime Contractor shall provide a written warranty on the installation and workmanship for a minimum of three years from the date of acceptance by the Engineer. Provide warranty prior to payment for work.
- B. Contractor must provide proof of past experience of applying similar type product and process including project names and project owner.

2.5 WARRANTY FAILURE/DEFECT

- A. Manufacturer is responsible for replacement material only for any warranty work. Contractor is responsible for removal and replacement of material for any warranty work.
- B. Material will be considered failed and require replacement if ≥ 10 percent of the original surface area of material comes out of the repaired area or becomes displaced due to repeated heavy loading. Material failures caused by the deterioration of pavement surrounding the original repair are not warrantable. Failure of pavement surrounding the original repair area is not warrantable unless caused by the failure or delamination of the patch.
- C. Material will require warranty repair if other deterioration such as loss of more than 30% of aggregate coating occurs measured as a percentage of the total surface area of the patch.
- D. Material will be considered failed and require replacement if more than 25% of the circumference of the patch becomes delaminated from the existing concrete.

PART 3 EXECUTION

3.1 PREPARATION

- A. Conduct surface preparations in accordance with manufacturer's instructions.
- B. Assure air lines used for cleaning are equipped with oil traps.
- C. Repair any damage caused by the operation at the Contractor's Expense.
- D. The Contractor will mark the areas for removal and obtain approval from the Engineer for the marked locations before beginning repairs. If, in the removal process, the actual spalled/delaminated area is determined to extend beyond what the Contractor initially marked, the Contractor will remark the area. Removal and repair of any such extended areas will be paid under the Contractor's unit bid price for Partial Depth Slab Repair.

3.2 APPLICATION

- A. Apply Concrete Repair Materials according to manufacturers's specifications and recommended installation instructions. Provide written copy of manufacturers installation instructions to the Engineer.
- B. Arrange for material manufacturers representative to be at job site for a minimum of one day before work begins and at least one additional day during work to provide training and oversight of application. Notify manufacturer at the 50% completion point for a follow up project visit and installation approval.
- C. Assure finish repair is made flush with the surrounding surface. Any workmanship determined to be below normal acceptable standards will not be accepted, and will be corrected and/or replaced as directed by the Engineer.
- D. Embed approved aggregate chips into the finished surface to enhance skid resistance and provide UV protection.
- E. Complete placement of material early enough each day to allow for travel lanes to be open to traffic before peak traffic hours. Sweep roadway and shoulders of all debris prior to opening to traffic. Prevent damage to the patches from cleaning equipment.

END OF SECTION

SP -9999(749)

SECTION 02768M

PAVEMENT MARKING MATERIALS

(Warranty Specification)

Delete section 1.3 B. Warranty Bond

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SECTION 03371S

THIN BONDED POLYMER OVERLAYS FOR BRIDGE DECKS AND APPROACH SLABS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for applying a protective crack treatment and bridge deck overlay using either an epoxy-urethane polymer (**Type 1**), or a Modified Epoxy polymer (**Type 2**) with a broadcast aggregate wearing surface.

1.2 REFERENCES

A.	ACI – 503R:	Adhesion to Concrete,	Pull Out Test

- B. ASTM C-109: Compressive Strength of Hydraulic Cement Mortars
- C. ASTM C-501: Test Method for Relative Resistance to Wear of Unglazed

Ceramic Tile by the Taber Abrader

- D. ASTM C-566: Aggregate Testing
- E. ASTM C-778: Sampling
- F. ASTM D-570: Water Absorption of Plastics
- G. ASTM D-638: Tensile Stress and Load Bearing Capacity
- H. ASTM D-790: Flexural Yield Strength
- I. ASTM D-971: Surface Tension
- J. ASTM D-2240: Rubber Property Durometer Hardness
- K. ASTM 4065-95: Dynamic Mechanical Analysis
 L. NCHRP 244: Chloride Penetration Test Method

- M Mohs Scale Hardness Test
- N. Sieve Analysis: Aggregate Gradation
- O. California Test Method 419: Flexural Creep

1.3 SUBMITTALS

- A. Submit the intended name of the manufacturer of the Polymer Overlay materials at the Pre-Construction Meeting.
- B. Submit to the ENGINEER for approval (at least 10 days prior to placement) a Certificate of Compliance from an independent nationally recognized laboratory stating that the polymer overlay materials meet the requirements listed in Tables 1, 2, 3, 4, 5 and other material requirements contained in this specification.
- C. Submit a name and phone number of the Manufacturer's Technical Support Representative at the Preconstruction Meeting.

PART 2 PRODUCTS

2.1 POLYMER OVERLAY MATERIALS

- A. Install an **Thin Bonded Polymer bridge deck overlay system using either an Epoxy-Urethane (Type 1) co-polymer, or modified Epoxy (Type 2) polymer as specified on the plan or detail sheets**, which includes all materials, surface preparation, application of a pretreatment for crack filling and bonding, and two (2) coats of a polymer resin broadcast with a high wear, high skid aggregate that chemically cures to provide an impervious wearing surface.
 - **Type 1 Epoxy-Urethane Co-Polymer:** Provide Polymer resins consisting of a blend of epoxy and urethane materials that meet the physical requirements outlined in other parts of this specification. The polymer overlay is to be free of any fillers, volatile solvents and the use of external/conventional flexiblizers is not permitted. The use of metered mixing equipment, as outlined in other parts of this specification is required with the use of this material. In general, the use of a Type 1 polymer (with equipment) is intended for high wear conditions, and rapid construction schedules, and is acceptable for use on all bridge deck environments.

Type 2 – Modified Epoxy Polymer: Provide Polymer resins consisting of modified epoxy materials that meet the physical requirements outlined in other parts of this specification. The use of additives, fillers, volatile solvents, and flexiblizers to modify the physical properties of the epoxy to meet physical requirements are acceptable. The use of metered mixing equipment, as outlined in other parts of this specification is **NOT** required with the use of this material, but is highly recommended. In general, the use of a Type 2 polymer should be limited to low wear conditions, and moderate construction schedules. For projects specifying a Type 2 (Modified Epoxy) polymer, a Type 1 (epoxy-urethane) polymer may be substituted for the Type 2 polymer.

2.2 STEEL SHOT BLAST

A. Clean concrete surfaces using a Steel Shot Blast in accordance with the recommendations of the polymer overlay manufacturer.

2.3 PRETREATMENT AND CRACK FILLER

A. After cleaning the concrete surface, apply a two (2) component pretreatment to the bridge deck to fill minor cracks and increase the bond strength between the overlay and the deck surface. Pretreatment to comply with the physical properties of TABLE 1:

TABLE 1 PHYSICAL PROPERTIES OF THE PRETREATMENT SYSTEM		
Property Value		
Compressive Strength, min. psi	5,500 – 6,000	
Tensile Strength, min. psi	3,100 – 3,400	
Tensile Elongation, percent min.	35 <u>+</u> 5	
Water Absorption, percent by wt. Max.	< 0.10	
Shore D Hardness, 77°F min.	70 <u>+</u> 5	
Gel Time, minutes	48-52 (7 oz.)	
Adhesion to Concrete	100% failure in concrete	
Surface tension	Less than 0.0012 pounds/in ³	
Percent Solids	100	

2.4 POLYMER OVERLAY SYSTEM

A. After applying the pretreatment, apply two (2) layers of a two-part polymer resin and saturate it with a broadcast aggregate before it cures. They polymer is to be formulated to volumetric mixing proportions (such as 1 part A to 1 part B), according to the manufacturer's recommendations. The cured polymer system is to comply with the physical requirements of TABLE 2.

TABLE 2		
PHYSICAL PROPERTIES OF THE POLYMER OVERLAY SYSTEM		
Property	Value	
Compressive Strength, min. psi	7,000	
Tensile Strength, min. psi	2,500	
Tensile Elongation, percent min.	35 <u>+</u> 5	
Water Absorption, percent by wt. Max.	0.20	
Shore D Hardness, 77°F min.	65 <u>+</u> 5	
Gel Time, minutes	22-31	
Abrasion Resistance, oz., max.	0.003	
Adhesion to Concrete	100% failure in concrete	
Flexural Creep: Total Movement in 7 days	.0065 inches minimum	
Flexural Yield Strength, min. psi	5,000	
Percent Solids	100	

- B. The modulus of the cured polymer system is to comply with the requirements of TABLE 3, using a variable temperature Dynamic Mechanical Analysis (DMA) at a frequency of 1 HZ with a 0.3% strain using ASTM D-4065-95.
- C. The cured epoxy-urethane system is to conform to a load bearing capacity of retaining 85% of its original load bearing strength at (tensile strength) as 20% strain using ASTM method D-638.

TABLE 3					
VISCO-ELASTIC	VISCO-ELASTIC PROPERTIES OF THE POLYMER OVERLAY SYSTEM				
TEMPERATURE	STORAGE MODULUS	LOSS MODULUS			
	pounds/in ²	Pounds/in ²			
14°F	1.45×10^5	$8.70X10^3$			
68°F	$1.01X10^{5}$	$1.30X10^4$			
122°F	$5.80X10^3$	$4.35X10^3$			
140°F	$1.45X10^3$	$1.01X10^3$			
158°F	$8.70X10^2$	$2.90X10^2$			

2.5 AGGREGATE

- A. An aggregate wearing surface is to be broadcast into the polymer system according to the manufacturer's specifications. The aggregate used is to be non-friable, non-polishing, clean and free of surface moisture. It should have a proven record of durability in this type of application. 100% of the aggregate is to have at least 1 mechanically fractured face for materials being retained on the #10 sieve. The aggregate is to be thoroughly washed, kiln dried to maximum moisture content of 0.2% by weight (ASTM C-566). The recommended aggregate is Washington Stone. Alternate aggregates may be allowed upon approval by the manufacturer and ENGINEER.
- B. The aggregate is to meet the physical properties of TABLE 4 and TABLE 5:

TABLE 4 AGGREGATE PROPERTIES		
GLACIAL GRAVEL	BASALT QUARTZITE GRANITE (% by Weight)	
SiO ₂	75.03	
Al_2O_3	11.49	
Fe ₂ O ₃	3.57	
CaO	2.84	
MgO	1.59	
SO_3	0.08	
Na_2O	2.58	
K_2O	0.99	
Combined Alkali	3.20	
Ignition Loss	1.72	
Mohs Scale Hardness	6.50	
ASTM 566 (water absorption)	0.2%	

TABLE 5		
AGGREGATE GRADATION		
Sieve Size	Percent Passing	
0.187 in; No.6	100	
0.078 in; No.10	10 – 35	
0.033 in; No.20	0 – 10	

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. Pot-Hole Patching: Repair any minor potholes of the surface area of the deck prior to installation of the polymer system using cementious patching materials that meet other specifications. The use of polymer patching materials will be allowed for potholes less than 1 inch in depth, and in accordance with the recommendations of the manufacturer and the ENGINEER. Any costs associated with the surface defects and pothole repairs less than 1 inch in depth are to be included in with the Bid Item for the Polymer Overlay System.
- B. Shot-Blasting: The entire deck is to be cleaned by steel shot-blasting to remove any oil, dirt, rubber or other materials that, in the opinion of the manufacturer or ENGINEER, may be detrimental to the bonding and curing of the polymer overlay.
- C. Curbs: In areas that cannot be reached with the steel shot-blasting, such as curbs, sandblasting equipment or mechanical grinders are permitted with the approval of the manufacturer or ENGINEER.
- D. Traffic: Traffic is not to be allowed on any portion of the deck, which has been shot-blasted. The overlay equipment will be allowed on cleaned surfaces under the supervision of the Manufacturer and Engineer.
- E. Weather: All surfaces to be treated are to be dry at the time of application. The polymer overlay system is not to be applied when it has rained within 24 hours, or is expected to rain within 8 hours. Moisture content in the concrete substrate is not be exceed 4.5% when measured by an electronic meter. The minimum recommended temperature is 50°F and increasing. The polymer overlays are not to be applied before April 15th, or after September 30th, unless approved by the Engineer.

3.2 APPLICATION

A. Sound Surface: The application of the pretreatment and Polymer Overlay Systems are to be on a structurally sound concrete surface and in accordance with the manufacturer's specifications.

- B. Metered Mixing Equipment: For Type 1 Polymers, the use of special equipment is required that is capable of metering, mixing and distributing the polymer. The machinery must be owned and operated, or approved by the polymer manufacturer. The application machine shall feature positive displacement volumetric metering pumps controlled by a hydraulic power unit. Components shall be stored in temperature controlled reservoirs capable of maintaining 100° ±10°F to insure optimum mixing. Ratio check verification at the pump outlets as well as cycle counting capabilities to monitor output will be standard features. In line mixing shall be motionless so as to not overly shear the material or entrap air in the mix. The machine shall maximize working time of the material by mixing it immediately prior to dispensing.
- C. Layer Thickness: The number of layers and the application rates of the liquid in the various layers shall be as recommended by the manufacturer in order to achieve a minimum overlay thickness of 0.375 in.

D. First Layer:

- 1. Application of the Liquid: After manually or mechanically measuring and mixing of the components, the liquid shall be evenly distributed on the clean, dry deck surface at the rate as recommended by the manufacturer. After the entire deck surface is wet, allow 1-2 hours for the liquid to achieve full depth penetration into cracks as well as adequately encapsulate the steel grid, if any. After the liquid is allowed to penetrate, medium size coarse silica sand may be broadcast evenly if the subsequent application is going to be applied after 8-12 hours.
- E. Second Layer: Prior to the application, if there exists any excess or loose aggregate from the previous coat, such excess aggregate shall be completely removed by vacuum or with compressed air. After mixing of the components via the mechanical application equipment, the liquid shall be evenly distributed on the clean, dry deck surface at the rate as recommended by the manufacturer.
- F. Time Limits For Aggregate: After the application of the liquid in the first and second coats, the maximum time allowed before broadcasting of the aggregate is as follows:

Above 90°F	10 minutes
80°F to 90°F	15 minutes
70°F to 80°F	20 minutes
60°F to 70°F	25 minutes
50°F to 60°F	35 minutes

- G. Broadcasting Aggregate: Broadcasting on decks shall be by truck-mounted equipment capable of dispensing the aggregate onto the deck in a uniform manner as directed or otherwise approved by the manufacturer. The aggregate shall be broadcast such that to cover the surface so that no wet spots appear and before the polymer begins to gel. The aggregate must be dropped vertically in such a manner that the level of the liquid is not disturbed. In the first and second layers of the liquid, aggregate conforming to TABLES 4 and 5 of this specification shall be broadcast to saturate until no wet spots remain.
- H. Removal Of Excess Aggregate: After the overlay has hardened, removal of all loose and excess aggregate with a power vacuum or other method shall be made prior to the application of subsequent coats.
- I. Longitudinal Joints In The Overlay: (i.e., between two adjacent lanes) shall be staggered and overlapped between successive coats so that no ridges will appear.
- J. Traffic: Traffic may be allowed on the final layer, or in between layers after the resin has cured (as determined by the manufacturer) and after removal of all excess, loose aggregate.
- K. Storage And Handling, Liquid Material: All material shall be transported and stored in their original containers inside a dry, temperature controlled facility and maintained at a minimum temperature of 60°F to 90°F.
- L. Job Site Storage: The materials shall be stored on the job site in a dry, weather protected facility away from moisture and within the temperature range of 60°F to 90°F. When the materials are transported or stored on the job, in the application machine tanks, the material must also be maintained at a temperature of 60°F to 90°F.
- M. Handling Of Liquid Materials On The Job: Protective gloves, clothing, boots and goggles shall be provided to workers and inspectors directly exposed to the material. Product safety data sheets shall be provided to all workers and inspectors as obtained from the manufacturer.
- N. Aggregate: All aggregate shall be stored in a dry, moisture-free atmosphere. The aggregate shall be full protected from any contaminants on the job site and shall be stored so as not be exposed to rain or other moisture sources.

3.3 QUALITY CONTROL

- A. Technical Support Representative: The manufacturer shall have a representative on the job site at all times who, upon consultation with the ENGINEER, may suspend any item of work that is suspect and does not meet the requirements of this specification. Resumption of work will occur only after the manufacturer's representative and the ENGINEER are satisfied that appropriate remedial action has been taken by the CONTRACTOR.
- B. Warranty: The polymer manufacturer and the CONTRACTOR shall jointly guarantee the wearing surface against all defects incurred during normal traffic for a **period of three (3) years**, for any delamination or reduced skid (less than 50). The guarantee period shall commence on the date of acceptance of work (typically the date traffic is allowed on surface),
- C. Samples: The manufacturer shall furnish at least one-quart sample of each component from each lot to the DOT laboratory to verify material supplied.
- D. Prior Performance: The selected material must have a satisfactory performance in Utah for at least 2-years from the time of placement. Products without 2 years of satisfactory prior performance will be considered as experimental, should not be used for bidding purposes, and will only be considered for use with the approval of the ENGINEER, after the award of the contract.
- E. Packing Requirement: All materials must be packed in strong, substantial containers. The containers shall be identified as Part A and Part B and shall be plainly marked with the name and address of the manufacturer, name of the product, mixing proportions and instructions, lot and batch numbers, date of manufacture and quantity contained therein.
- F. Material Quality Control And Testing Methods: The materials used shall meet the properties specified in the tables and other sections of this specification, and shall also meet the following correspondence tests for quality control:
 - 1. Compressive Strength: ASTM C-109, *Compressive Strength of Hydraulic Cement Mortars*. The two components of the resin are to be thoroughly mixed in their appropriate ratios. Two volumes of graded silica sand in accordance with ASTM C-778 shall be added to one volume of mixed resin. The samples shall then be prepared according to the requirements of ASTM C-109 and allowed to cure for 7 days at 73° ±4°F.
 - 2. Tensile Strength and Elongation: ASTM D-638, *Tensile Properties of Plastics*, Specimen Type I or Type II. Samples shall be cured at 73° ±4°F and 50 ±5% relative humidity. Speed of testing shall be 0.5 in./min.
 - 3. Water Absorption: ASTM D-570, *Water Absorption of Plastics*. Sample specimens shall be prepared according to Section 4.1 and allowed to cure at 73° ±4°F and 50 ±5% relative humidity. Tests are then to be carried out as per Section 6.1.

- 4. Shore D Hardness: ASTM D-2240, *Rubber Property Durometer Hardness*. Specimen shall be prepared as per ASTM D-570 Section 4.1 and allowed to cure at 73 ±4°F.
- 5. Gel Time: The following procedure shall be used to determine gel time: Measure 4 oz. of Part A and 2 oz. of Part B each at 77°F, into an unwaxed paper cup and record the time and mix immediately. 3.5 oz. of this mixture shall be poured into a 6 oz. unwaxed paper cup and placed on a wooden bench top. Starting twenty (20) minutes from the time recorded above, the mixture shall be probed every two (2) minutes with a small stick until a small ball forms in the center of the container. The total time, including mixing, required for the ball to form shall be regarded as the gel time. The test shall be performed in a room or enclosed area maintained at 77° +4°F and 50 +5% relative humidity.
- 6. Abrasion Resistance: ASTM C-501, Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abrader. Tests shall be done using a CS-17 wheel and a 2.2 pound load for 1,000 cycles.
- 7. Adhesion to Concrete: ACI-503-R, Pull Out Test.
- 8. Flexural Creep: California Test Method 419.
- 9. Flexural Yield Strength: ASTM D-790.
- 10. Surface Tension: ASTM D-971.

END OF SECTION

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SECTION 03381S

CLEAR PENETRATING CONCRETE SEALER FOR BRIDGES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for applying protective penetrating concrete sealers (vinyl toluene acrylic silane polymer) on bridge parapets, outside face of exterior beam, bent caps and column concrete surfaces.

1.2 REFERENCES

- A. AASHTO T 260: Sampling and Testing for Total Chloride Ion in Concrete and Concrete Raw Materials.
- B. ASTM C 267: Chemical Resistance of Mortars, Grouts, and Monolithic Surfacing and Polymer Concretes.
- C. ASTM C 666: Resistance of Concrete to Rapid Freezing and Thawing.
- D. ASTM E 274: Skid Resistance of Paved Surfaces Using a Full-Scale Tire.

1.3 SUBMITTALS

- A. Certificate of Compliance to the ENGINEER or the Construction and Materials Division
- B. One liter of the product to the ENGINEER for each lot of material
- C. Material Safety Data Sheets (MSDS).
- D. Each container shall be clearly marked with lot numbers, date of manufacture, pertinent safety and handling information, and emergency contact phone numbers.

PART 2 PRODUCTS

2.1 PENETRATING CONCRETE SEALERS

- A. Vinyl toluene acrylic silane polymer blend penetrating sealant for concrete surfaces. Substitution of the alktrialkoxy film forming silane by silicones or siloxanes will not be permitted.
- B. Slight color dies are allowed for application purposes, with clear appearance within 7 days of application.
- C. Comply with Federal VOC requirements.
- D. Comply with requirements of Table 1:

Table 1

Penetrating Concrete Sealer Requirements				
* Properties	Requirements	ASTM	AASHTO	** UDOT
Accelerated Weathering	As Specified	C 666	T 260	
Freeze-thaw Test Medium	# 3 % Road Salt			Sealer Studies
Minimum Depth Penetration	\$ 5/32 in.			Sealer Studies
Freeze-thaw Weight Loss	# 6 % 300 Cycles			Sealer Studies
Chemical Resistance	Subsections: 1.1.2 1/1/3	C 267		
Friction Number	\$ 40	E 274		
Infrared Spectrogram	Materials Division Base Comparison			Materials Studies

^{*} Certified test results from a private accredited testing laboratory will suffice for acceptance.

^{**} Utah Department of Transportation, Materials and Research Division concrete sealer studies of 1986 and 1990.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean concrete surfaces of latence, dirt, dust, grease, oil, and other contaminants using a low pressure hydro-wash, according to the manufacturer's recommendations, without causing undue damage to the concrete surfaces or exposing the course aggregate of the concrete.
- B. Allow cleaned surfaces to sufficiently dry after cleaning process before applying sealant (2 hours minimum, or longer according to the manufacturers recommendations, which ever is greater). Apply sealants no later than 3 calendar days after cleaning the concrete surfaces.
- C. Supplier of the sealant product must have a technical support person available at the job site within 24 hours of notification for quality control purposes.
- D. Place the sealant material only after obtaining the approval from the ENGINEER.

3.2 APPLICATION

- A. Application Rate:
 - 1. Based upon the residue content at a coverage rate of 0.012 pounds/ft².
 - 2. Apply according to manufacturer's recommendation for each of the following surfaces: Horizontal, Vertical, Overhead.
- B. The sealant solution shall not be diluted in any way.
- C. Use low pressure airless sprayers or horticulture type spray bars to allow proper application of material.
- D. Application Drying Time: Select a sealer with maximum drying time of 11/2 hours, and the ability to allow traffic on the treated surfaces within 4 hours of application without tracking or damage to vehicles.
- E. Apply sealant only when ambient air and concrete temperatures are above 50 degrees F.
- F. Prevent sealant from blowing or tracking onto vehicles. Sealant shall not be applied when blowing winds, inclement weather or other conditions prevent proper application

END OF SECTION

SPECIAL PROVISION SP-9999(749)

SECTION 03605 S

APPROACH SLAB JACKING

(Using a High-Density Polyurethane Method)

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Raising and void filling the approach slab(s) by drilling and injecting expanding high-density polyurethane underneath.
- B. Re-support and accurately re-align the approach slab(s) into a stable base and grade for a long lasting smooth ride.

1.2 QUALITY ASSURANCE

Provide Certificates of Compliance for expanding high density polyurethane prior to placement.

1.3 WARRANTY

- A. The supplier warrants all materials and workmanship for a period of three years against shrinkage, deterioration or settlement.
- B. The supplier replaces by re-injection any material that fails during the warranty period.
 - 1. Submit for the ENGINEER's approval prior to beginning work on project, a Letter of Warrantee against failure of materials and workmanship for a three-year period following completion of the project.

1.4 PAYMENT PROCEDURES

A. Approach slab jacking paid by lump sum.

PART 2 PRODUCTS

2.1 HIGH DENSITY POLYURETHANE

- A. Water based formulation of expanding high density polyurethane used for raising slabs.
 - 1. Minimum density of 3.75 lbs/cu. ft.
 - 2. Maximum density of 4.25 lbs./cu. ft.
- B. Sets to 90% compressive strength within 15 minutes after injection, sufficient for traffic, with full strength in 24 hours.
- C ASTM D 1621.

PROPERTY	ASTM	LIMITS
Density	D 1622	Min.4 lbs/ft ³
Tensile Strength	D 790*	Min.100 psi
Elongation	N/A	Max. 5.1%
Compressive Strength at Yield Point	D 1621	Min. 90 psi

^{*}Use the value of flexural strength or flexural yield as tensile strength.

2.2 EQUIPMENT

- A. Pneumatic drill capable of drilling 5/8 inch diameter holes.
- B. Truck mounted pumping unit capable of injecting a high-density polyurethane formulation between the concrete pavement and the sub-base and capable of controlling the rate of rise in the pavement.
- C. Truck to be equipped with certified scales or an ENGINEER approved measuring device to monitor amount of material used.
- D. A laser level unit for measuring the required grade and elevation.

PART 3 EXECUTION

3.1 PREPARATION

A. Establish a finish target profile of the pavement using a level.

3.2 INSTALLATION

- A. Drill holes as required in the roadway slab.
- B. Inject material to raise the slab. Pavement must be raised to an even plane.
- C. After completion of the slab raising, seal drill holes full depth with the same material.
- D. Final grade after jacking must be within $\pm \frac{1}{4}$ inch of finished grade profile.
- E. The contractor shall be responsible for any pavement blowouts; new cracks or excessive pavement lifting, which may result from the process. The contractor shall repair damaged areas to the satisfaction of the Engineer without additional cost.